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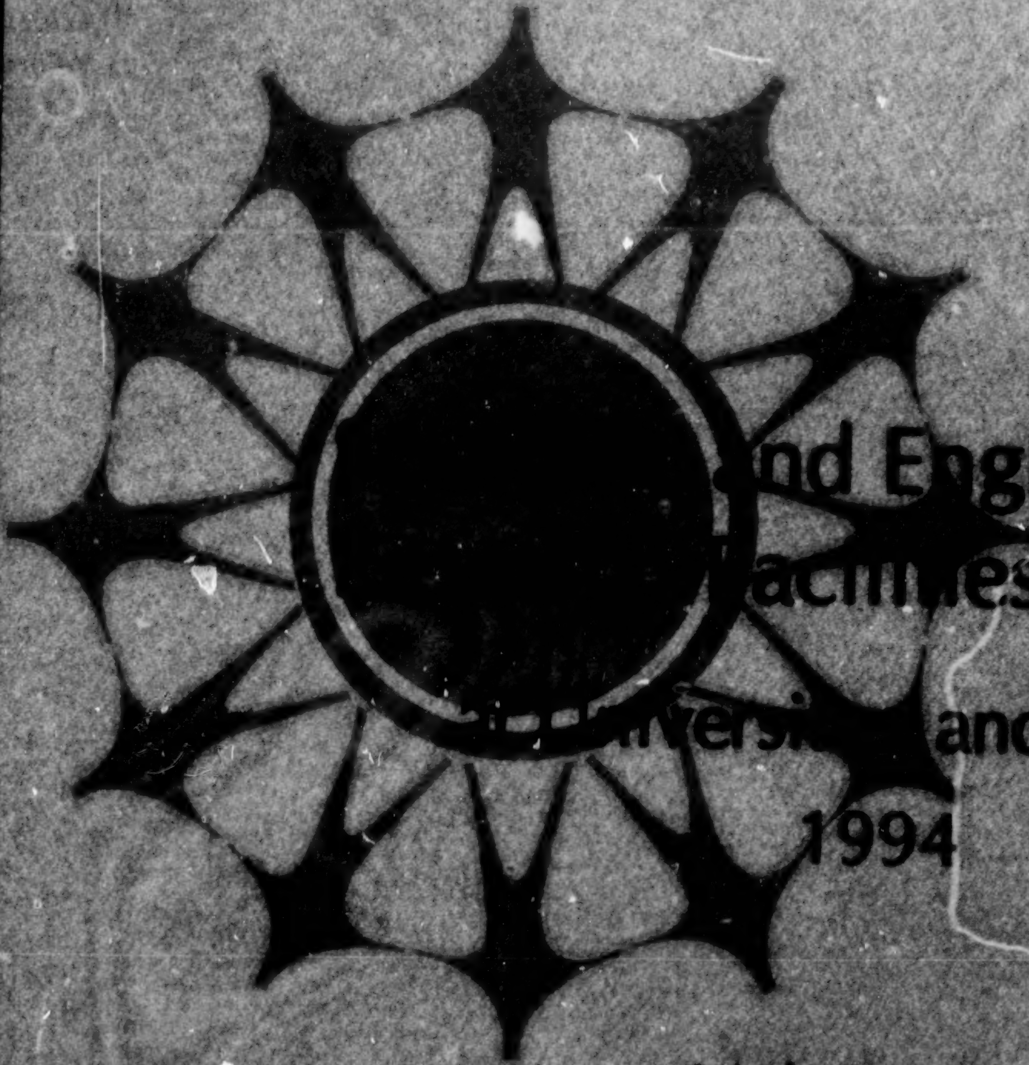

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Volume II
Detailed Statistical Tables

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September 1994
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Highlights . . .

◆ In 1994, the 565 research-performing universities and colleges in the United States had 127 million net assignable square feet (NASF) of science and engineering (S&E) research space. The top 100 institutions had 82 percent of total academic research and development (R&D) expenditures and accounted for 72 percent of this S&E research space. Other doctorate-granting institutions accounted for 24 percent, and the nondoctorate-granting institutions for 4 percent of S&E research space.

◆ S&E research space has increased since 1988 at an annual average rate of about 2 percent, from 112 million NASF to 127 million NASF in 1994. Other National Science Foundation (NSF) surveys show that [illegible] under 8 percent [illegible] percent per year during [illegible].

◆ More than 40 percent of all [illegible] indicated [illegible] of S&E [illegible] sciences, the biological [illegible] sciences in medical schools.

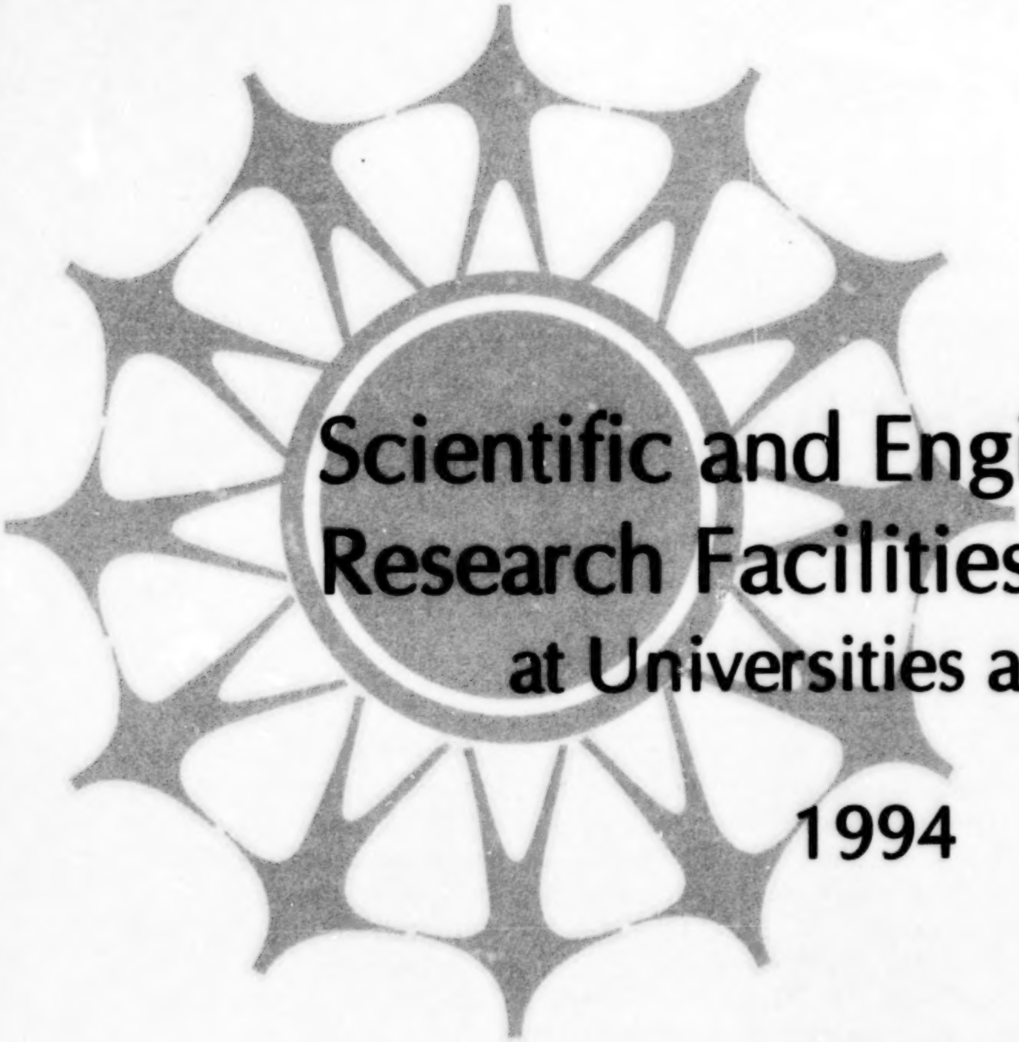
◆ Twenty-six percent of S&E [illegible]

◆ [illegible]

◆ [illegible]

◆ [illegible]

◆ [illegible]



Scientific and Engineering Research Facilities at Universities and Colleges

1994

Volume II
Detailed Statistical Tables

Project Director: Ann T. Lanier

National Science
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- Richard Blatchly, Professor of Chemistry, Keene State College
- Joanne Cate, Principal Administrative Analyst, Resource Management, University of California System
- Fred Jones, Dean of the School of Graduate Studies and Research, Meharry Medical College
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Executive Summary

Universities and colleges are a critical component of the nation's research system. The availability and condition of research facilities at these institutions influence the ability of scientists and engineers to conduct research and train the future science and engineering workforce. Numerous Congressional committees have expressed concerns about the quality of these facilities and the costs of maintaining them. Hearings held in both House and Senate committees on science and technology in the mid-1980s led to the conclusion that the condition of these facilities posed a "serious and ongoing problem . . . ." However, insufficient information existed to assess the extent of the problem.

Recognizing the need for information on the amount and quality of scientific and engineering (S&E) research space, Congress mandated that the National Science Foundation (NSF) gather this information and report it to Congress:

> *The National Science Foundation is authorized to design, establish, and maintain a data collection and analysis capability in the Foundation for the purpose of identifying and assessing the research facilities needs of universities and colleges. The needs of universities by major field of science and engineering, for construction and modernization of research laboratories, including fixed equipment and major research equipment, shall be documented. University expenditures for the construction and modernization of research facilities, the sources of funds, and other appropriate data shall be collected and analyzed. The Foundation, in conjunction with other appropriate Federal agencies, shall report the results to the Congress. The first report shall be submitted to the Congress by September 1, 1986* (42 U.S.C. 1886).

Since 1986, NSF has collected data on a biennial basis to address these concerns of Congress. The first study, a "quick response" survey, provided limited data regarding S&E facilities issues. In 1988, 1990, 1992, and 1994, full-scale surveys have provided considerable information about the nations' academic research facilities.

This report describes the findings from the 1994 survey and places them in historical context by comparing results with those from earlier surveys. Following a brief discussion of the study methods, the remainder of this executive summary addresses several key questions regarding S&E research space in research-performing universities and colleges:

- How much space is available for S&E research, and how has this changed over time?
- How much more space is needed?
- How good is the existing space, and what improvements are needed?
- What is being done to address these needs?
- Where does the money come from?
- What more remains to be done?

The final section of the summary profiles two distinct groups of institutions that play important roles in the training of future scientists and engineers: Historically Black Colleges and Universities (HBCUs) and a select group of academic institutions that are oriented primarily to undergraduate education. These predominantly undergraduate institutions consist of comprehensive universities and liberal arts colleges.

What Methods Did This Study Use?

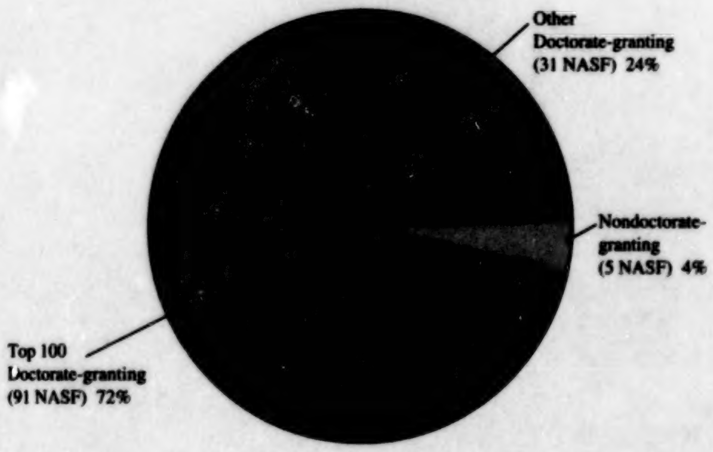
The 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges collected data from a universe of 565 institutions, which included all those with research and development (R&D) expenditures of $50,000 or more and HBCUs with any R&D expenditures.

The 1994 survey was mailed to all sampled institutions in the fall of 1993. Extensive telephone follow-up was used to elicit a 93 percent response rate and to resolve questions regarding incomplete or inconsistent responses. Sampled institutions that had participated in the 1992 survey were also sent a computer-generated "facsimile" of their previous responses. (See Appendix A, *Technical Notes*, for a detailed description of the sampling procedures and data collection methods.)

How Much Space Is Available for S&E Research, and How Has This Changed Over Time?

In 1994, universities and colleges devoted about 282 million net assignable square feet (NASF) of space to S&E fields. Of this space, about 127 million NASF was devoted to research.[1] The top 100 institutions in R&D expenditures housed the most S&E research space, 91 million NASF, comprising about 72 percent of all S&E research space (Figure 1).[2] The top 100 institutions also had 82 percent of total academic R&D expenditures.

Figure 1. Top 100 doctorate-granting institutions have 72 percent of the total 127 million net assignable square feet (NASF) of science and engineering research space: 1994
[NASF in millions]



SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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[1] Throughout this report, research is defined as "all research and development activities of an institution that are budgeted and accounted for." Research can be funded by the Federal government, state governments, foundations, corporations, universities, or other sources. "Research space" refers to the net assignable square footage of space within research facilities (buildings) in which research activities take place. Multipurpose space, such as an office, is prorated to reflect the proportion of use devoted to research activity.

[2] The "top 100" designation is based on institutions' fiscal year 1991 research expenditures, as reported in *Academic Science and Engineering: R&D Expenditures, Fiscal Year 1991*, National Science Foundation, 1993.

Since 1988, the amount of S&E research space has increased steadily, growing at an average rate of about 2 percent per year. From 1988 to 1994, the available S&E research space grew from 112 to 127 million NASF.[3] Most of this increase occurred in the top 100 institutions; engineering experienced the largest growth of any single S&E field.

How Much More S&E Research Space Is Needed?

To answer this question, institutions assessed, for each S&E field, how adequate the amount of existing space was for current research programs. Of those institutions with some research space in each field, at least 40 percent reported inadequate amounts of space in four S&E fields:

- Engineering
- Physical sciences
- Biological sciences outside of medical schools; and
- Medical sciences in medical schools.

The institutions that had the most S&E research space also expressed the greatest need for more space. Over half of the top 100 institutions reported inadequate amounts of research space in all four of the above S&E fields. Fewer than 40 percent of the nondoctorate-granting institutions reported inadequate amounts of space in any field.

How Good Is Existing S&E Research Space, and What Improvements Are Needed?

Of all S&E research space, over a quarter (33 million NASF) was considered suitable for the most sophisticated research, a result driven by the high quality of space at doctorate-granting institutions. Both the top 100 institutions and other doctorate-granting institutions designated about 27 percent of their overall space as "suitable for use in the most highly developed and scientifically sophisticated research . . . ." The nondoctorate-granting institutions classified 16 percent of their space into this category.

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[3] The reported figures are conservative estimates of the total amount of space used for S&E research in academic settings. Space used for organized research but also for other purposes is prorated to reflect the proportion of research usage.

The second category of space, space that is "suitable for most uses," included another 33 percent of the total S&E research space. This percentage was fairly consistent across doctorate-granting institutions. Nondoctorate-granting institutions rated 42 percent of their space as belonging to this category.

Twenty-three percent of existing S&E research space was considered to need limited repair/renovation. This percentage was generally consistent across institution types. Thirteen percent of S&E research space was rated as needing major repair/renovation, and another 4 to 5 percent required replacement.

Repair/renovation needs were concentrated in a few S&E fields. The single field requiring the largest proportion of major repair/renovation or replacement was agricultural sciences, in which 22 percent of the existing research space was rated in this category. However, few institutions (20 percent) had agricultural sciences research space. In environmental sciences, about 19 percent of the existing research space needed major repair/renovation or replacement.

Other fields in which 15 percent or more of the total S&E research space needed major repair/renovation or replacement included the biological sciences outside of medical schools (19 percent); the physical sciences (18 percent); the medical sciences, both within and outside medical schools (17 percent for both); engineering (15 percent); and the biological sciences in medical schools (15 percent).

What Is Being Done to Address S&E Research Facility Needs?

In fiscal years 1992–1993, universities and colleges began over $2,812 million of construction for S&E research space. Most of this construction activity, approximately $2,000 million or 72 percent, occurred at the top 100 institutions. Other doctorate-granting institutions spent approximately $691 million on the construction of new S&E research space, and nondoctorate-granting institutions spent $92 million.

For the first time since NSF began collecting data on S&E research facilities, in fiscal years 1992–1993, the inflation-adjusted amount (the constant dollar amount) spent on construction of S&E research space declined.[4] (See Figure 2 on the following page.)

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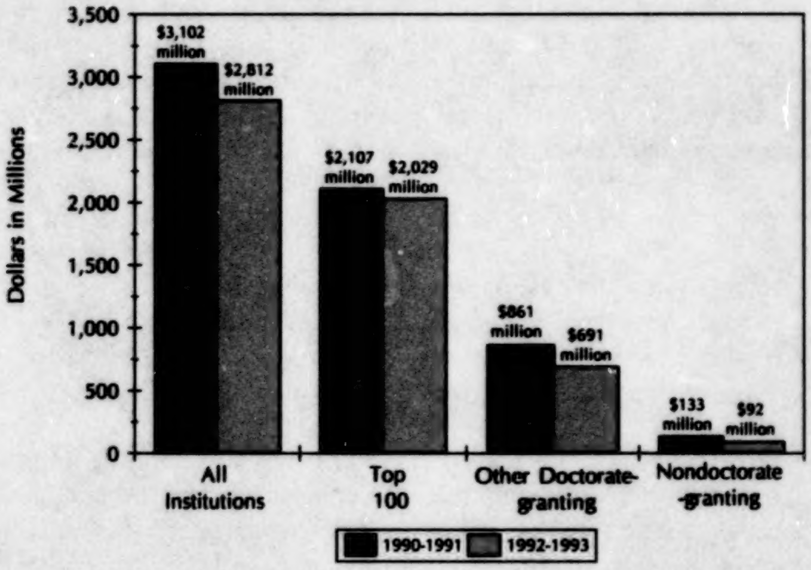
[4] This report used the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction to adjust construction dollar amounts for inflation.

Figure 2. Dollars for construction projects for science and engineering research space declined since fiscal years 1990-1991
[Constant 1993 dollars in millions]



SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Repair/renovation spending for existing S&E research space also declined to $837 million in fiscal years 1992–1993 from $861 million in fiscal years 1990–1991, continuing the decline that began in fiscal years 1988–1989. The decline in repair/renovation was driven by a decline at the top 100 institutions.

Some level of capital projects (either construction or repair/renovation) took place at almost half (46 percent) of all institutions during fiscal years 1992–1993. However, almost all of the top 100 institutions (90 percent) began capital projects, while 25 percent of the nondoctorate-granting institutions did so. Forty-eight percent of the other doctorate-granting institutions began capital projects in fiscal years 1992–1993.

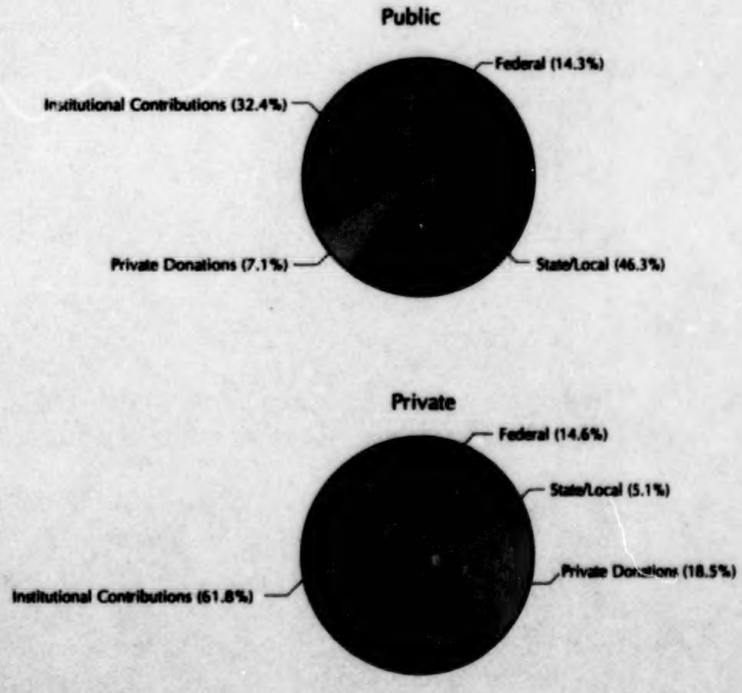
As noted above, agricultural sciences was the S&E field with the largest proportion of space that needed major repair/renovation or replacement. With the exception of S&E fields in medical schools (biological and medical sciences), agricultural sciences was also the field in which the highest percentage of institutions was undertaking construction projects. In fiscal years 1992–1993, 27 percent of all institutions with research space in the agricultural sciences had construction projects underway in that field.

Institutions were more likely to have begun repair/renovation projects than construction projects in most S&E fields. The two exceptions were agricultural sciences and mathematics. In agricultural sciences, 27 percent of all institutions began construction, and 18 percent began repair/renovation projects. In mathematics, 2 percent of all institutions began both construction and repair/renovation projects.

Who Funds Capital Projects?

In fiscal years 1992–1993, public and private institutions drew upon substantially different sources to fund the construction and repair/renovation of S&E research space. Public institutions relied primarily on state and local funding, which accounted for 46 percent of their total funding for capital projects. Private institutions relied primarily on institutional contributions (institutional funds, tax-exempt bonds, and other debt); these funds accounted for 62 percent of the total funding for their capital projects (Figure 3).

Figure 3. Public and private institutions have different funding sources of capital projects for construction and repair/renovation of science and engineering research space: 1994



SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

At public institutions, capital funding declined about 4.5 percent between fiscal years 1986–1987 and fiscal years 1992–1993. Private institutions experienced a large drop in capital funding from state and local governments between fiscal years 1990–1991 and the following two fiscal years of 1992–1993. However, the high level of state and local capital funding that private institutions received in fiscal years 1990–1991 was somewhat atypical; it was considerably higher than at any time since fiscal years 1986–1987.

What More Remains to Be Done?

Congress is concerned with determining what universities and colleges need with regard to S&E research space. Determining need is a complex matter, because what is needed must be placed within a framework that is realistic from a budgetary perspective.

In an effort to measure real (as opposed to speculative) needs, the 1994 survey adopted a conservative approach to this issue. (See Appendix A, *Technical Notes*, for a discussion of differences from previous surveys.) It combined institutions' assessments of S&E research space needs with deferred plans to repair/renovate or to construct S&E research space. Institutions reported whether an approved institutional plan existed that included "any deferred space that requires new construction or repair/renovation." Four criteria were used to define deferred space:

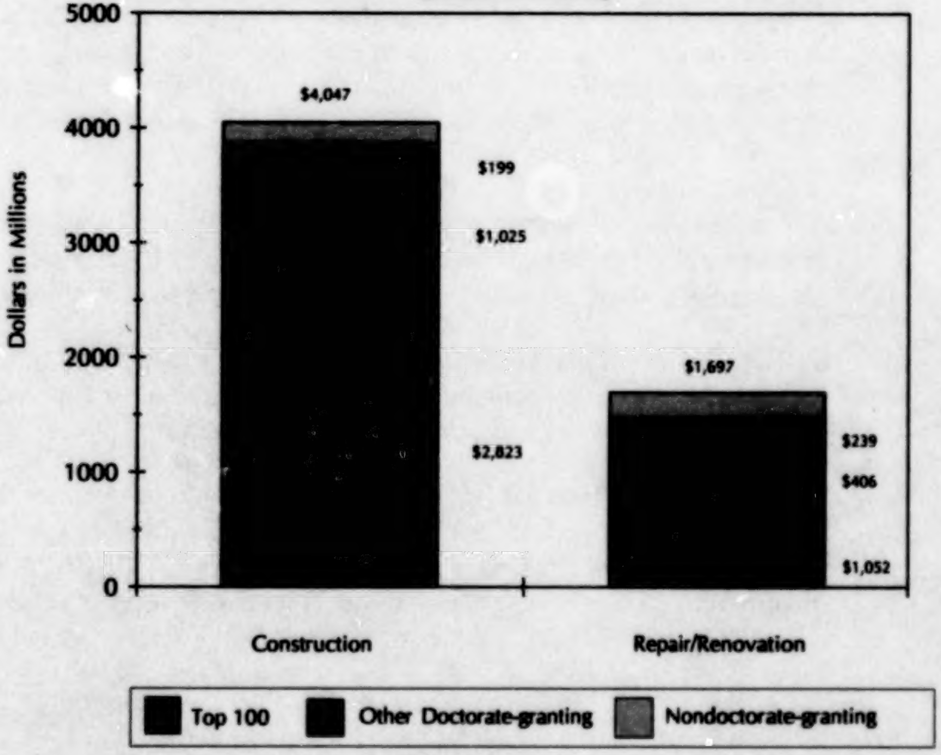
- The space must be necessary to meet the critical needs of current faculty or programs;
- Construction must not be scheduled to begin during fiscal years 1994–1995;
- Construction must not currently have funding; and
- The space must not be for developing new programs or expanding the number of faculty.

Using these standards, respondents were asked to estimate for each S&E field the construction and repair/renovation costs of such deferred projects.

The strength of this approach is the fact that institutions must make decisions about the distribution of scarce resources to develop and approve these plans. In short, these plans are not wish lists. Therefore, when approved institutional plans include construction or repair/renovation that is deferred (i.e., not planned for fiscal years 1994–1995), it is reasonable to see these deferred projects as needed projects yet to be addressed. Forty percent of responding institutions could report deferred space meeting these criteria; sixty percent did not; the information reported here is based on reports from the forty percent. Although a less formal definition might well lead to a different estimate than the one reported here, the needs expressed based on these criteria provide a framework for meaningful interpretation of results and the development of trends over future years. These estimates reflect a thoughtful process of deliberation and compromise at the responding institutions.

Deferred capital projects at the 40 percent of institutions with institutional plans amounted to $5,744 million. Of this, $4,047 million reflected needs for construction, and $1,697 million reflected needs for repair/renovation (Figure 4).

Figure 4. Unfunded science and engineering capital needs total $5,744 million
[Dollars in millions]



SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

The fields in which capital projects were most often deferred included engineering, with 18 percent of responding institutions reporting deferred capital projects; the physical sciences, with 16 percent reporting deferred capital projects; the medical sciences in medical schools, with 16 percent; and the biological sciences outside of medical schools, with 14 percent.

What Is the State of S&E Research Facilities at Historically Black Colleges and Universities?

Historically Black Colleges and Universities (HBCUs) have played an important role in the education of black students at all higher education levels for over 100 years. These universities and colleges consist of both public and private institutions as well as two-year, four-year, and professional schools. In 1991, approximately 269,000 students attended the 105 institutions of higher education considered HBCUs by the U.S. Department of Education. Although the HBCUs have considerably less S&E research space than other research-performing institutions, the HBCUs are an important source of science and engineering degrees for the black students who are currently enrolled in college.[5]

Research-performing HBCUs contained 7.9 million NASF of S&E space, of which 2.2 million were devoted to research. Among a panel of 29 institutions that has been sampled consistently since 1988, the amount of S&E research space dropped slightly, from 1.78 million NASF in 1988 to 1.76 million in 1994.

HBCUs reported that their S&E research space was in fairly good shape. Over 30 percent of space was reported to be suitable for the most sophisticated research, and 9 percent was in need of major repair/renovation.

Construction starts at HBCUs continued a precipitous decline. In fiscal years 1986–1987, the panel of 29 HBCUs spent $83.2 million in constant dollars on construction of S&E research space. By fiscal years 1992–1993, this figure had dropped to $8.6 million, about a tenth of its earlier level. (See Figure 5 on the following page.)

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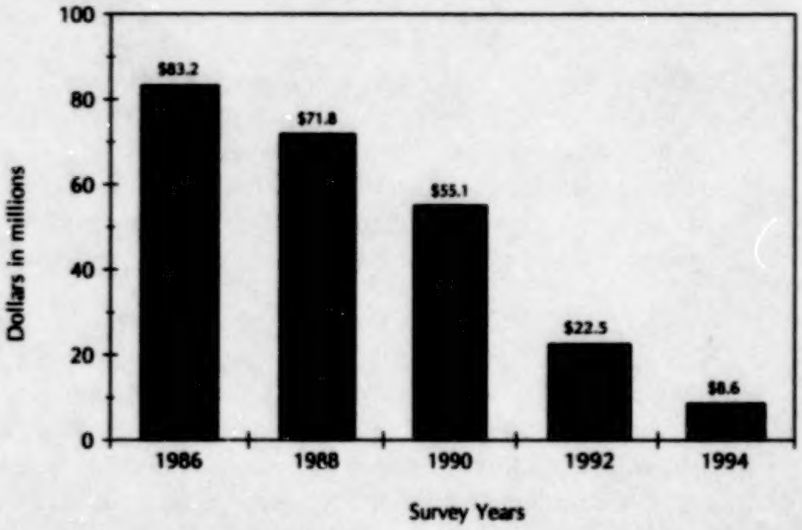
[5] A recent study of science and engineering doctorates revealed that almost 30 percent of black science and engineering doctorate degree recipients between 1985 and 1990 received their bachelors degrees from HBCUs.

Figure 5. Funding for construction at Historically Black Colleges and Universities has declined
[Constant 1993 dollars in millions]



SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

HBCUs continued to receive most of their funding for S&E research space construction and repair/renovation from the Federal government.

What Is the State of S&E Research Facilities at Predominantly Undergraduate Institutions?

In the National Science Foundation Authorization Act of 1994, the Committee on Science, Space, and Technology expressed concern "that NSF's biennial survey of academic research facilities needs ... has not focused adequately on the needs of undergraduate institutions." The 1994 facilities survey, in the field at the time, was not designed to collect data regarding the specific needs of undergraduate institutions. Furthermore, the sampling frame for this study did not represent all the types of undergraduate institutions of concern to Congress. Nevertheless, the 1994 survey and sample can provide insights into several issues regarding the S&E research facilities of a select group of undergraduate institutions.

Predominantly undergraduate institutions that engaged in separately budgeted S&E research had a total of approximately 25 million NASF of space in S&E disciplines. Analysis divided these institutions into two groups: comprehensive universities (institutions that granted a master's degree as well as a bachelor's degree) and liberal arts colleges. Over 80 percent of the S&E space at predominantly undergraduate institutions was in the comprehensive universities.

Of all S&E space at predominantly undergraduate institutions, only 17 percent was devoted to S&E research, as might be expected because of their educational mission. Almost half of this space was characterized as "effective for most purposes," though not generally suitable for the most advanced research. Approximately 3 percent of the S&E research space was classified as in need of replacement, about the same as all other institutions.

To address S&E research space needs, these institutions invested a total of about $92.3 million in capital projects in fiscal years 1992–1993. Of this total, $65.2 million was spent on construction and $27.1 million was spent on repair/renovation. Of the predominantly undergraduate institutions which had an approved institutional plan that included deferred or unfunded capital projects for S&E research space, deferred capital projects totaled over $356.6 million.

Introduction

Background

Universities and colleges are a critical component of the nation's science and engineering (S&E) research system. The availability and condition of research facilities at these institutions influence the ability of scientists and engineers to conduct research and train future scientists. Numerous Congressional committees have expressed concerns about the quality of these facilities and costs of maintaining them. Hearings held in both House and Senate committees on science and technology in the mid-1980s led to the conclusion that the condition of these facilities posed a "serious and ongoing problem . . . ." However, insufficient information existed to assess the extent of the problem.

Recognizing the need for information on the amount and quality of S&E research space, Congress mandated that the National Science Foundation (NSF) gather this information and report it to Congress:

> *The National Science Foundation is authorized to design, establish, and maintain a data collection and analysis capability in the Foundation for the purpose of identifying and assessing the research facilities needs of universities and colleges. The needs of universities by major field of science and engineering, for construction and modernization of research laboratories, including fixed equipment and major research equipment, shall be documented. University expenditures for the construction and modernization of research facilities, the sources of funds, and other appropriate data shall be collected and analyzed. The Foundation, in conjunction with other appropriate Federal agencies, shall report the results to the Congress. The first report shall be submitted to the Congress by September 1, 1986* (42 U.S.C. 1886).

Since 1986, NSF has collected data on a biennial basis to address these concerns of Congress. The first study, a "quick response" survey, provided limited data regarding S&E facilities issues. In 1988, 1990, 1992, and 1994, full-scale surveys have provided considerable information about the nation's academic research facilities.

The Survey and its Design

The 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges, like earlier efforts, collected data on the amount of S&E research space in the nation's higher education institutions, the adequacy and condition of this space, the extent to which universities and colleges were constructing facilities and repairing/renovating space, and the funding of this activity. In addition, the 1994 survey gathered for the first time information about unfunded and deferred capital projects for S&E research facilities.

The sample for the 1994 survey was designed to provide efficient and unbiased estimates of the amount of S&E research space in universities and colleges and to retain, as much as possible, comparability with the 1992 sampling procedures. This sample represented a universe of 565 institutions with more than $50,000 in research and development (R&D) as well as Historically Black Colleges and Universities (HBCUs) with any R&D expenditures.

As was the case in previous years, most institutions in the sample were selected with a probability proportional to the square root of their R&D expenditures in thousands. (See Appendix A, *Technical Notes*, for a more complete discussion of sampling procedures.) The final sample of 309 universities and colleges, which represented the universe of 565, included the following:

- All of the top 100 universities and colleges in terms of R&D expenditures (n=100);
- Other public doctorate-granting universities (n=50);
- Other private doctorate-granting universities (n=35);
- Public nondoctorate-granting institutions (n=72); and
- Private nondoctorate-granting institutions (n=52).

The sample of HBCUs was distributed among the 309 universities and colleges. These 309 universities and colleges are described as research-performing institutions throughout the report.

The 1994 survey was mailed to all sampled institutions in the fall of 1993. Extensive telephone follow-up was used to elicit a high response rate and to resolve questions regarding responses. Sampled institutions that had participated in the 1992 survey were also sent a computer-generated "facsimile" of their previous responses. Overall, 93 percent of all universities and colleges sampled completed the survey, an increase from 89 percent in the 1992 survey.

The Report

The 1994 report has been reformatted to help readers obtain answers to a number of key policy concerns. Each chapter contains the following sections:

- *Highlights*, a summary of key findings;
- *Context*, the rationale and background for the data presented in the chapter;
- *The Survey Question(s)*, a description of the question or questions around which the chapter is focused;
- *Data Considerations*, a presentation of data limitations or interpretations; and
- *Findings*, tables, graphs, and text that address questions frequently posed about S&E research facilities.

This report provides information presented in previous reports, particularly data pertaining to trends in the amount, condition, capital activity, and funding of S&E research space, as well as a profile of HBCUs. In addition, the 1994 report includes a chapter on deferred and unfunded construction and repair/renovation projects as well as a profile of institutions that are predominantly undergraduate in orientation. Although information on animal care facilities was presented as a separate chapter in previous reports, this information is incorporated into individual chapters in the current report.

In most chapters, differences among types of institutions and S&E fields are presented. Throughout the report, type of institution refers to the following categories:

- Doctorate-granting, which includes
    - The top 100 institutions in R&D expenditures
    - The other doctorate-granting institutions not in the top 100
- Nondoctorate-granting

Fifteen percent of the HBCU institutions are doctorate-granting; 85 percent are classified as nondoctorate-granting. Throughout this report, HBCUs are included in the data of their appropriate institution type except in Chapter 7, which focuses on predominantly undergraduate institutions. In this chapter, nondoctorate HBCU data are reported separately.

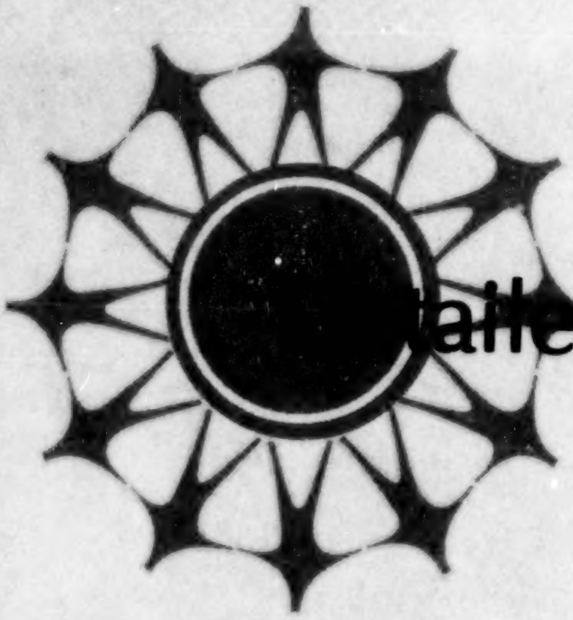
For this survey and report, the S&E fields include the following: engineering; physical sciences; environmental sciences; mathematics; computer sciences; agricultural sciences; biological sciences, both in universities and colleges and in medical schools; medical sciences, both in universities and colleges and in medical schools; psychology; social sciences; and other sciences, not elsewhere classified.

Chapter 1 presents findings on the amount of research space available in S&E fields at research-performing institutions, currently and over time. Chapter 2 examines the adequacy of the amount of S&E research space as well as its condition as assessed by the institutions. Chapter 3 provides information on the costs in constant and current dollars of constructing facilities and repairing/ renovating S&E research facilities. The sources of funds for these capital projects are presented in Chapter 4.

Chapter 5, new to the 1994 report, examines deferred and unfunded construction and repair/renovation projects. Chapter 6 provides a profile of HBCUs, and Chapter 7, also new to this report, profiles institutions that are predominantly undergraduate in their focus.

Several appendices provide interested readers with more detailed information. Appendix A, *Technical Notes*, presents additional material about the study design and methodology. Appendix B includes a list of sampled institutions. Appendix C contains the survey instrument. Appendix D lists references.

A second volume, *Statistical Tables*, contains detailed statistical information.



ailed Statistical Tables

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Table 1-1. Number of research-performing institutions, total net assignable square feet (NASF) of space in all academic fields, NASF in science and engineering (S&E) fields, and research NASF in S&E fields by institution type and control: 1994

[NASF in millions]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	565	511	282	127
Doctorate-granting	319	428	253	122
Top 100 in research expenditures	100	265	171	91
Other	219	163	82	31
Nondoctorate-granting	246	83	29	5
Public	326	363	203	91
Doctorate-granting	188	307	183	88
Nondoctorate-granting	138	56	20	3
Private	239	149	79	36
Doctorate-granting	131	122	70	34
Nondoctorate-granting	108	27	9	2

[1] Projected from responses of 83 percent of institutions.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 1-2. Number of research-performing institutions, total net assignable square feet (NASF) of space in science and engineering (S&E) fields, and research NASF in S&E fields by institution type and control: 1988, 1990, 1992, and 1994

[NASF in millions]

Total	525	525	525	565	270.6	276	285.4	282.2	112.1	116.3	122	127.2
Doctorate-granting	293	293	294	319	240.7	243.9	256.3	252.7	107.4	111.2	117.4	121.8
Top 100 in research expenditures	100	100	100	100	165.7	163.9	171.9	170.6	80.6	81.7	87.5	90.9
Other	193	193	194	219	75.1	80	84.3	82.1	26.8	29.5	29.9	30.9
Nondoctorate-granting	232	232	231	246	29.9	32.1	29.1	29.4	4.6	5.2	4.6	5.4
Public	320	319	319	326	204.3	211.7	218.7	203.1	82.4	86.9	90.8	91.7
Doctorate-granting	191	190	192	188	183.5	188.9	198.6	182.7	79.3	83.6	88	88.2
Nondoctorate-granting	129	129	127	138	20.8	22.8	20.1	20.5	3.1	3.3	2.8	3.5
Private	205	206	206	239	66.3	64.4	66.7	79	29.7	29.4	31.2	35.6
Doctorate-granting	102	103	102	131	57.2	55.1	57.6	70.9	28.2	27.6	29.4	33.7
Nondoctorate-granting	103	103	104	108	9.1	9.3	9.1	8.9	1.5	1.8	1.8	1.9

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 1-3. Number of research-performing institutions with space assigned to science and engineering fields by field and institution type: 1988, 1990, 1992, and 1994
[NASF in millions]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total	525	525	525	565	100	100	100	100	193	193	194	219	232	232	231	246
Engineering	295	299	304	314	86	86	86	88	128	129	130	129	81	84	88	98
Physical sciences	473	471	468	512	93	93	89	91	150	147	147	181	230	231	231	241
Environmental sciences	323	326	329	336	84	85	83	86	120	112	122	129	118	129	124	121
Mathematics	455	457	458	486	93	93	88	90	148	145	153	171	215	219	217	225
Computer sciences	426	404	426	455	86	86	83	82	133	131	144	167	207	187	199	208
Agricultural sciences	104	103	98	120	42	41	40	41	30	27	25	29	32	35	33	50
Biological sciences	499	509	513	548	100	100	100	100	170	181	182	216	229	228	231	232
In universities and colleges	475	479	485	509	96	95	94	93	151	156	161	184	229	228	231	232
In medical schools	94	105	128	131	50	55	60	60	44	50	68	71	0	0	0	0
Medical sciences	294	318	307	321	87	87	91	91	120	140	145	144	88	91	70	86
In universities and colleges	235	250	257	272	68	68	72	67	79	91	114	119	88	91	70	86
In medical schools	138	144	150	125	64	64	67	66	74	80	83	59	0	0	0	0
Psychology	472	470	435	469	91	91	86	88	155	155	155	176	227	225	194	205
Social sciences	461	447	421	450	94	95	91	93	153	155	152	165	214	198	177	191
Other, not elsewhere classified	111	75	82	86	47	40	38	41	40	23	30	25	24	12	14	19

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 1-4. Number of institutions with research space assigned to science and engineering fields by field and institution type: 1988, 1990, 1992, and 1994

Total	513	517	501	551	100	100	100	100	188	187	188	219	225	229	213	232
Engineering	283	296	280	290	85	86	86	87	128	129	126	122	70	81	68	82
Physical sciences	446	450	432	485	92	92	89	91	142	141	141	181	212	217	202	214
Environmental sciences	299	294	298	291	80	82	81	81	120	112	121	118	98	89	96	92
Mathematics	318	296	285	321	85	88	85	82	105	85	91	125	129	124	109	114
Computer sciences	332	281	284	333	78	79	80	74	95	89	90	130	159	113	114	128
Agricultural sciences	96	94	95	114	42	41	40	41	30	27	25	29	24	26	30	44
Biological sciences	480	482	464	528	100	100	100	100	163	174	175	216	217	208	188	213
In universities and colleges	456	451	434	489	95	94	94	93	144	149	152	184	217	208	188	213
In medical schools	94	105	125	131	50	55	60	60	44	50	66	71	0	0	0	0
Medical sciences	268	267	267	288	85	87	89	91	114	123	133	130	69	57	44	67
In universities and colleges	205	189	208	235	67	67	67	67	70	64	96	101	69	57	44	67
In medical schools	134	141	146	122	63	64	66	66	71	77	80	56	0	0	0	0
Psychology	403	402	377	412	87	86	84	85	131	132	142	165	185	184	150	162
Social sciences	360	347	318	370	89	91	87	89	127	117	114	141	144	140	116	140
Other, not elsewhere classified	92	69	71	66	45	40	37	40	35	18	26	15	12	11	7	12

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 1-5. Number of public and private research-performing institutions with space assigned to science and engineering (S&E) fields, and number with assigned research space in S&E fields: 1988, 1990, 1992, and 1994

Total	320	319	319	326	205	206	206	239	316	319	311	323	197	198	190	228
Engineering	219	225	220	221	76	73	84	92	207	222	204	198	76	73	77	92
Physical sciences	286	285	283	310	188	186	185	202	280	280	269	301	165	170	164	184
Environmental sciences	224	221	210	229	99	105	119	106	213	195	193	201	87	88	105	91
Mathematics	277	275	275	295	178	182	184	191	218	197	184	197	101	98	101	124
Computer sciences	253	247	264	278	173	158	162	177	213	164	19[illegible]	199	120	116	92	134
Agricultural sciences	99	96	88	116	6	7	10	4	90	87	84	110	6	7	10	4
Biological sciences	309	313	314	321	190	196	199	227	305	298	286	321	175	184	178	227
In universities and colleges	291	291	296	313	184	187	189	196	287	277	266	298	168	174	168	191
In medical schools	68	70	79	66	26	35	49	64	68	70	77	66	26	35	49	64
Medical sciences	220	233	219	227	74	85	88	94	197	190	186	227	71	77	81	94
In universities and colleges	196	202	195	211	38	48	62	62	170	152	156	179	36	37	51	56
In medical schools	86	89	96	65	51	55	54	60	82	86	92	63	51	55	54	60
Psychology	286	285	269	290	186	185	166	179	263	261	245	259	140	141	132	153
Social sciences	272	278	262	283	189	169	159	167	246	244	214	232	114	103	103	138
Other, not elsewhere classified	92	63	61	51	19	13	21	35	73	57	53	45	19	13	18	21

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted twice.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 1-6. Total net assignable square feet (NASF) of space in science and engineering fields by field and institution type: 1988, 1990, 1992, and 1994

[NASF in thousands]

[redacted]

Total	270,621	276,041	285,383	282,176	165,655	163,911	171,895	170,627	75,070	80,024	84,340	82,110	29,895	32,107	29,148	29,440
Engineering	40,063	42,291	43,150	44,752	24,422	24,810	26,089	26,361	11,353	12,177	12,505	14,481	4,288	5,303	4,556	3,909
Physical sciences	35,634	37,542	36,722	37,648	18,807	19,264	19,075	18,530	9,677	9,854	10,613	12,059	7,150	8,425	7,085	7,057
Environmental sciences	12,268	12,019	12,411	12,174	7,816	7,598	6,799	7,751	3,239	3,222	4,371	3,181	1,214	1,199	1,241	1,242
Mathematics	4,786	5,190	5,198	5,956	2,179	2,279	2,207	2,398	1,490	1,662	1,753	1,921	1,116	1,249	1,238	1,637
Computer sciences	4,938	4,625	5,707	6,206	2,245	2,430	2,818	2,795	1,594	1,318	1,673	1,826	1,099	877	1,216	1,584
Agricultural sciences ...	29,994	34,003	33,161	33,971	22,276	24,706	25,699	26,402	5,948	7,194	5,500	5,796	1,771	2,103	1,962	1,773
Biological sciences	45,184	49,321	51,778	51,671	26,768	28,276	30,279	30,017	12,591	15,023	15,937	16,152	5,827	6,022	5,562	5,501
In universities and colleges	32,445	34,385	33,108	34,717	18,769	19,046	18,703	18,866	7,850	9,318	8,842	10,349	5,827	6,022	5,562	5,501
In medical schools	12,739	14,936	18,670	16,954	7,999	9,231	11,575	11,151	4,741	5,705	7,095	5,803	0	0	0	0
Medical sciences	66,231	63,168	70,104	60,023	43,201	39,024	43,245	39,612	21,782	22,930	25,244	18,587	1,247	1,214	1,615	1,823
In universities and colleges	21,387	21,955	24,572	22,445	14,699	15,090	15,576	13,731	5,441	5,651	7,380	6,890	1,247	1,214	1,615	1,823
In medical schools	44,843	41,213	45,532	37,578	28,502	23,934	27,668	25,881	16,341	17,279	17,864	11,697	0	0	0	0
Psychology	9,011	9,122	8,329	8,728	4,182	4,025	3,894	3,866	2,528	2,759	2,726	3,009	2,302	2,339	1,708	1,852
Social sciences	16,433	15,158	14,926	17,089	9,766	8,798	8,659	9,647	3,264	3,424	3,655	4,790	3,403	2,936	2,612	2,651
Other, not elsewhere classified	6,078	3,602	3,846	3,958	3,993	2,701	3,132	3,247	1,604	461	362	303	480	440	352	407

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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Table 1-7. Total net assignable square feet (NASF) of research space in science and engineering fields by field and institution type: 1988, 1990, 1992, and 1994
[NASF in thousands]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	112,062	116,327	122,015	127,369	80,627	81,659	87,508	90,974	26,815	29,508	29,865	30,956	4,620	5,161	4,642	5,438
Engineering	15,900	17,057	18,095	20,730	11,444	12,130	13,577	14,538	3,928	4,214	3,996	5,557	529	713	523	636
Physical sciences	16,024	16,121	16,353	17,001	10,443	10,429	10,487	10,380	4,236	4,232	4,767	5,347	1,344	1,459	1,099	1,275
Environmental sciences	6,313	6,056	6,728	7,053	4,645	4,534	4,145	5,324	1,458	1,314	2,251	1,436	210	208	332	292
Mathematics	722	790	829	937	397	415	437	491	260	300	300	312	65	75	92	132
Computer sciences	1,437	1,445	1,606	1,779	835	1,017	1,114	1,179	431	315	332	361	170	113	160	238
Agricultural sciences ..	17,622	20,821	19,910	20,120	14,433	16,032	16,714	16,952	2,821	4,247	2,737	2,692	368	542	459	475
Biological sciences	23,910	26,154	27,721	27,857	16,804	17,546	18,805	19,074	6,105	7,480	7,749	7,394	1,001	1,128	1,167	1,389
In universities and colleges	16,072	17,569	17,072	16,982	11,403	11,715	11,316	11,487	3,668	4,727	4,589	4,106	1,001	1,128	1,167	1,389
In medical schools ...	7,838	8,584	10,649	10,876	5,401	5,831	7,489	7,587	2,437	2,754	3,160	3,288	0	0	0	0
Medical sciences	19,363	19,721	22,374	22,868	14,573	14,090	16,374	16,961	4,681	5,518	5,899	5,731	109	113	100	175
In universities and colleges	5,320	4,959	6,234	6,070	4,208	4,133	4,806	4,397	1,004	713	1,328	1,497	109	113	100	175
In medical schools ...	14,042	14,762	16,139	16,799	10,365	9,957	11,569	12,564	3,677	4,805	4,571	4,234	0	0	0	0
Psychology	3,085	2,978	2,984	3,178	1,771	1,581	1,665	1,717	896	984	981	1,047	418	413	337	413
Social sciences	3,337	3,338	3,253	3,403	2,380	2,359	2,339	2,204	635	671	654	872	322	309	260	326
Other, not elsewhere classified	4,350	1,846	2,162	2,442	2,903	1,526	1,851	2,152	1,364	232	198	203	83	87	113	86

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 1-8. Total net assignable square feet (NASF) of space in science and engineering (S&E) fields, and research NASF in S&E fields by field and institution control: 1988, 1990, 1992, and 1994

[NASF in thousands]

Total	204,302	211,651	218,687	203,107	66,318	65	66,696	79,069	82,384	86,881	90,815	91,723	26,678	29,447	31,200	35,645
Engineering	29,780	32,224	33,252	33,492	10,284	10,066	9,898	11,260	11,593	12,562	13,383	15,418	4,306	4,495	4,712	5,311
Physical sciences	24,505	26,595	25,912	25,048	11,129	10,947	10,860	12,599	10,719	10,944	11,299	11,342	5,305	5,177	5,054	5,659
Environmental sciences	9,624	9,393	9,981	9,307	2,644	2,626	2,430	2,866	5,045	4,833	5,718	5,692	1,267	1,223	1,009	1,361
Mathematics	3,520	3,874	3,811	4,309	1,266	1,316	1,387	1,646	505	527	554	635	217	264	276	301
Computer sciences	3,530	3,041	3,947	3,977	1,408	1,584	1,759	2,229	875	735	973	975	562	710	633	804
Agricultural sciences ..	29,238	32,510	31,409	30,707	756	1,493	1,753	3,264	17,233	19,434	18,304	18,788	389	1,387	1,607	1,331
Biological sciences	32,596	35,837	36,060	34,538	12,588	13,484	15,718	17,131	16,327	18,307	19,094	17,835	7,583	7,847	8,627	10,024
In universities and colleges	24,164	26,449	25,754	26,186	8,281	7,937	7,354	8,530	11,473	13,240	13,327	12,646	4,599	4,329	3,745	4,337
In medical schools ...	8,433	9,388	10,306	8,352	4,307	5,547	8,364	8,601	4,854	5,067	5,768	5,189	2,984	3,517	4,881	5,687
Medical sciences	48,810	47,691	54,010	40,869	17,420	15,478	16,094	19,154	12,315	13,160	15,108	14,346	7,047	6,562	7,266	8,522
In universities and colleges	16,920	18,755	19,675	17,563	4,468	3,200	4,897	4,882	3,948	4,137	4,674	4,608	1,373	822	1,560	1,461
In medical schools ...	31,891	28,935	34,335	23,306	12,953	12,278	11,197	14,272	8,368	9,022	10,434	9,738	5,675	5,739	5,705	7,061
Psychology	6,254	6,415	5,960	6,224	2,758	2,706	2,369	2,503	2,216	2,102	2,148	2,266	869	876	836	911
Social sciences	12,284	11,071	11,305	12,006	4,149	4,087	3,621	5,082	2,794	2,684	2,601	2,806	543	655	652	597
Other, not elsewhere classified	4,162	3,000	3,038	2,627	1,917	602	808	1,332	2,761	1,593	1,632	1,620	1,589	253	530	824

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 1-9. Total net assignable square feet (NASF) of science and engineering research space that is leased by institution type and control: 1988, 1990, 1992, and 1994

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	3,771	3,551	4,755	4,366	3.4	3.1	3.9	3
Doctorate-granting	3760	3536	4717	4317	3.5	3.2	4	3.5
Top 100 in research expenditures	2,847	2,601	3,532	3,696	3.5	3.2	4	4
Other	913	935	1,185	621	3.4	3.2	4	2
Nondoctorate-granting	11	15	38	48	0.2	0.3	0.8	0.9
Public	2,315	2,145	2,869	3,169	2.8	2.5	3.2	3
Private	1,456	1,406	1,886	1,196	4.9	4.8	6	3

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals..

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 1-10. Total net assignable square feet (NASF) and research NASF of laboratory animal facilities by institution type and control: 1994

[NASF in thousands]

[illegible]	[illegible]	[illegible]	[illegible]
Total	493	11,353	8,644
Doctorate-granting	304	10,584	8,261
Top 100 in research expenditures	96	7,841	6,403
Other	208	2,743	1,858
Nondoctorate-granting	190	769	383
Public	290	7,800	5,727
Doctorate-granting	179	7,183	5,446
Nondoctorate-granting	111	616	281
Private	203	3,553	2,917
Doctorate-granting	125	3,400	2,815
Nondoctorate-granting	79	153	102

NOTES: Refers to institutions reporting any space in laboratory animal facilities that are subjected to government regulations concerning the humane care and use of laboratory animals. Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 2-1. Adequacy of the amount of science and engineering research space by field: 1988, 1990, 1992, and 1994

					[Percentage of institutions' assessments]											
Engineering	283	296	290	297	8.7	10.6	5.8	6.7	40.1	40.8	49.1	53.3	51.1	48.6	45.1	40.5
Physical sciences	445	450	433	489	4.7	8.7	10.6	6.4	52.4	50.8	52.3	53.1	42.9	40.5	37	40.5
Environmental sciences	297	284	314	310	11	11.1	10.5	7.2	49.4	48.4	59.4	59.6	39.5	40.5	30.1	33.2
Mathematics	318	296	300	348	21	17.6	16.1	16	53.6	47.2	58.6	55.5	25.4	35.2	25.3	28.3
Computer sciences	331	280	297	347	15.1	13.5	12.9	15.5	38.2	41.5	56.7	48.3	46.9	45	30.3	36
Agricultural sciences ...	96	94	96	123	11	17	17.5	10.5	51.2	39.9	48.2	59.7	37.7	43.1	34.3	29.6
Biological sciences:																
In universities and colleges	444	451	434	490	8.3	8.7	10.8	6.2	45.8	48.2	51.8	53.7	45.9	43.1	37.4	40.1
In medical schools	91	105	125	132	3.7	10.4	3.6	10.6	47.3	35.5	60.5	53.5	49	54.1	35.9	35.5
Medical sciences:																
In universities and colleges	191	189	210	243	14.3	13	14.2	11.7	46	40.3	50.1	50.3	39.7	46.7	35.7	38.2
In medical schools	134	141	146	126	0.8	7	4.2	10.8	52.6	33.8	54.1	44.8	46.6	59.2	41.8	44
Psychology	403	398	388	425	16.8	13.2	17.2	14.8	51.4	54.3	50	53.9	31.8	32.4	32.9	31.2
Social sciences	360	345	328	378	12.9	12.7	8.2	7.2	50.2	51	64.4	63.4	36.9	36.2	27.4	29.3
Other, not elsewhere classified	90	69	71	63	10.4	16.9	14	15	51.3	39.2	44.9	50	38.4	44	41.1	36.5

[1] Exludes institutions that have no research space in the field and report "not applicable or not needed."

[2] Includes the category "nonexistent but needed."

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 2-2. Trends in percentage of institutions with inadequate amount of space by field and institution type: 1988, 1990, 1992, and 1994

Engineering	61	59	52	55	46	41	37	35	49	49	53	35
Physical sciences	63	57	48	51	43	45	38	46	35	31	31	32
Environmental sciences	47	50	38	41	44	33	23	34	33	42	40	27
Mathematics	45	35	28	32	29	35	24	19	10	37	28	35
Computer sciences	54	55	35	43	46	39	26	30	43	42	28	39
Agricultural sciences	42	45	42	37	39	51	29	29	28	32	31	24
Biological sciences:												
In universities and colleges	52	50	44	51	46	43	35	32	43	40	37	38
In medical schools	51	64	46	49	35	43	26	24	-	-	-	-
Medical sciences:												
In universities and colleges	48	56	32	43	43	35	41	41	26	49	32	30
In medical schools	62	52	53	33	57	33	35	-	-	-	-	-
Psychology	32	38	34	31	26	32	35	25	36	29	32	37
Social sciences	36	39	37	38	29	34	27	26	44	36	26	27

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
Data from 1988, 1990, and 1992 have been adjusted to match the analytic procedure used to calculate 1994 figures.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 2-3. Trends in percentage of institutions with inadequate amount of space by field and institution control: 1988, 1990, 1992, and 1994

Engineering	51	51	52	47	50	10	28	25
Physical sciences	44	[illegible]	43	43	40	29	26	36
Environmental sciences	50	46	39	34	23	29	17	31
Mathematics	27	43	31	32	21	21	17	22
Computer sciences	45	49	31	38	50	40	24	33
Agricultural sciences	39	45	38	29	20	14	12	46
Biological sciences:								
In universities and colleges	48	54	43	46	42	25	28	30
In medical schools	56	61	37	39	31	40	34	32
Medical sciences:								
In universities and colleges	41	50	39	38	36	31	27	39
In medical schools	55	61	42	48	33	56	42	40
Psychology	32	31	36	33	31	34	28	29
Social sciences	37	37	32	32	38	34	23	25

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
Data from 1988, 1990, and 1992 have adjusted to match the analytic procedure used to calculate 1994 figures.

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 2-4. Condition of science and engineering (S&E) research facilities by institution type and control: 1988, 1990, 1992, and 1994

[Percentage of institutions' S&E research space]

Total	23.9	25.9	26.8	26.4	36.8	35.3	34.7	32.8	23.5	23.3	22.6	23.1	15.8	15.5	12.8	12.9	3.1	4.1
Doctorate-granting	24.3	26.2	27.2	26.9	36.2	34.8	34.3	32.4	23.5	23.3	22.4	22.9	16.2	15.7	12.9	12.9	3.2	4.2
Top 100 in research expenditures	23.9	27.2	26.7	26.7	35	33.4	31.8	31.7	24	22.9	23.4	22.9	17.1	16.5	14.2	13.1	3.9	4.8
Other	25.6	23.5	28.8	27.1	39.8	38.6	41.8	34.8	21.8	24.2	19.3	23.1	12.8	13.6	9.2	12.2	1	2.5
Nondoctorate-granting	15.6	18.9	16.8	15.8	49.5	47.2	43	41.3	23.8	22.8	29.2	26.7	11.1	11.1	9.8	13.9	1.2	2.2
Public	23.1	24.5	25.5	25.2	36.2	35.7	34.8	33.2	24.4	23.9	23.1	24.1	16.4	15.9	13.1	13	3.5	4.7
Doctorate-granting	23.4	24.6	25.7	26	35.7	35.4	34.6	32.9	24.4	24	22.9	23.8	16.6	16	13.2	12.5	3.6	4.7
Nondoctorate-granting	17.5	21.1	19.1	16	48	44.3	41.8	38.3	24	22.7	26.8	27.2	10.4	11.8	11.2	16	1.1	2.3
Private	26.2	30.1	30.8	27.7	38.4	34.1	34.3	31.9	21	21.2	21.4	21.6	14.4	14.5	11.7	12.7	1.8	2.7
Doctorate-granting	27	31.1	31.8	29.4	37.6	32.9	33.6	32	20.9	21.1	20.7	20.5	14.5	14.8	12	11.7	1.9	2.6
Nondoctorate-granting	11.5	15.1	13.3	15.3	52.8	52.4	44.9	46.6	23.3	22.9	32.8	25.7	12.4	9.7	7.5	10.1	1.4	1.9

[1] The data for 1988 and 1990 in this category include space requiring replacement.

[2] This category was first used in the 1992 survey.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 2-5. Percentage of total stock of science and engineering research space by condition and field: 1988, 1990, 1992, and 1994

Engineering	26.1	27.9	28.4	31.4	37.6	35.6	36.1	32.3	22.4	22	22.2	21.3	13.9	14.5	10.8	12.1	2.4	2.8
Physical sciences	25.7	26.3	29.9	24.8	34.5	33.5	32.5	33.8	22.3	23.7	23	23.8	17.5	16.5	12.5	15.3	2.1	2.3
Environmental sciences	18.7	18.7	22.5	22.1	40.6	40.4	41.9	35.9	26	26.1	23.7	22.9	14.7	14.8	9.5	13	2.4	6
Mathematics	29.5	25.9	30.6	22.6	45.3	44.6	47.1	47	19.4	21.9	17.5	24.9	5.8	7.6	3	4.1	1.8	1.3
Computer sciences	32.6	38.3	43.9	35.2	35	35.5	35.4	40.9	16.2	18	13.7	17.9	16.2	8.1	6	4.7	1	1.2
Agricultural sciences ...	21.2	20.3	16.8	18.2	32.5	33.6	34.3	32	26.2	24.1	22.7	27.4	20	22	18.5	13.6	7.7	8.8
Biological sciences:																		
In universities and colleges	23.2	27.5	25.5	22.6	36.2	34.3	32.6	31	25	24.2	26.7	27.1	15.5	14	12.5	14.2	2.8	5
In medical schools	36.2	34.3	38.6	36.9	34	33.5	30.2	32.2	16.5	18.9	17.4	15.8	13.4	13.2	12.5	13.3	1.4	1.8
Medical sciences:																		
In universities and colleges	18.1	24	24.4	25.7	40.1	35.1	34.4	34.4	27.2	23.8	24	23.3	14.6	17	13.8	11.8	3.4	4.7
In medical schools	25.2	28.4	29.7	33.7	35.1	34.4	33.3	29.1	23.1	23.7	22.3	20.5	16.6	13.4	12.6	13.5	2	3.3
Psychology	23.2	20.5	22.2	22.8	43.7	46.6	46.9	46.2	20.8	21.4	20.9	26.1	12.3	11.6	9	11.1	1	2
Social sciences	14.8	17.2	17.1	14.4	47.7	45	42.8	46.2	26.7	28.1	26.7	28.2	10.8	9.8	12.2	9	1.2	1.9

[1] The data for 1988 and 1990 in this category include space requiring replacement.

[2] This category was first used in the 1992 survey.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 2-6. Government regulation status of laboratory animal facilities by institution type and control: 1994
[Percentage of current laboratory facility research space]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	100	84	9	7
Doctorate-granting	100	84	10	7
Top 100 in research expenditutes	100	83	11	7
Other	100	87	6	7
Nondoctorate-granting	100	88	8	4
Public	100	80	12	8
Doctorate-granting	100	80	12	8
Nondoctorate-granting	100	92	6	2
Private	100	91	5	4
Doctorate-granting	100	91	5	4
Nondoctorate-granting	100	77	15	7

NOTES: Refers to institutions reporting any space in laboratory animal facilities that is subject to goverment regulations concerning the humane care and use of laboratory animals. Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-1. Number of research-performing institutions starting any projects to construct science and engineering research space by institution type and control: 1986–1993

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	192	227	191	184	178
Doctorate-granting	135	154	165	144	146
Top 100 in research expenditures	72	71	81	81	80
Other	64	83	84	63	66
Nondoctorate-granting	57	73	27	39	32
Public	140	158	136	133	119
Doctorate-granting	103	106	116	103	103
Nondoctorate-granting	37	52	20	30	16
Private	52	68	55	51	59
Doctorate-granting	32	48	49	42	43
Nondoctorate-granting	19	21	7	10	16

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects estimated total costs at completion of $100,000 or more research space. Estimates are prorated to reflect research components only.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-2. For projects to construct science and engineering research space, estimated net assignable square feet (NASF) of research space to be created and estimated total cost of the construction of this research space by institution type and control: 1986–1995

[NASF in thousands; dollars in millions]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	9,922	2,051	10,647	2,464	11,433	2,976	10,992	2,811	11,060	3,020
Doctorate-granting	8,908	1,888	9,840	2,315	11,022	2,847	10,474	2,720	10,485	2,889
Top 100 in research expenditures	7,261	1,599	6,073	1,558	6,972	2,022	6,787	2,029	8,034	2,389
Other	1,647	288	3,767	757	4,050	826	3,687	691	2,451	500
Nondoctorate-granting	1,014	163	807	150	411	128	518	92	576	129
Public	7,344	1,355	8,115	1,727	8,268	2,020	8,189	2,016	8,238	2,130
Doctorate-granting	6,516	1,220	7,460	1,626	7,942	1,906	7,695	1,929	7,911	2,069
Nondoctorate-granting	828	134	656	101	325	114	494	86	327	61
Private	2,578	696	2,532	738	3,165	956	2,802	796	2,822	890
Doctorate-granting	2,392	667	2,381	689	3,079	941	2,778	789	2,574	821
Nondoctorate-granting	186	29	152	48	86	15	24	6	248	69

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represents 525 institutions.

Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.

Because of rounding, components may not add to totals.

Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-3. Number of research-performing institutions starting any projects to construct science and engineering research space by field: 1986–1995

Total	192	227	191	184	178
Engineering	79	252	48	49	60
Physical sciences	41	67	50	44	49
Environmental sciences	28	17	42	26	17
Mathematics	3	5	13	5	8
Computer sciences	28	21	20	13	13
Agricultural sciences	36	32	28	32	26
Biological sciences	58	107	91	70	51
In universities and colleges	43	87	57	49	38
In medical schools	20	26	41	26	13
Medical sciences	54	47	86	59	61
In universities and colleges	18	14	33	25	20
In medical schools	42	35	62	41	41
Psychology	21	11	29[1]	8	8
Social sciences	19	13		10	11
Other, not elsewhere classified	14	13	22	13	10

[1] Psychology and social sciences were not differentiated in the questionnaire for the 1990–1991period.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted
twice.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-4. For projects to construct science and engineering research space, estimated net assignable square feet (NASF) of research space to be created and estimated total cost of the construction of this research space by field: 1986–1995

[NASF in thousands; dollars in millions]

[illegible]	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
	[illegible]	[illegible]	[illegible]	Cost	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	9,922	2,051	10,647	2,464	11,433	2,976	10,992	2,812	11,060	3,020
Engineering	2,390	430	1,490	388	1,697	395	1,065	286	2,056	550
Physical sciences	799	182	2,000	401	1,609	430	1,257	337	817	364
Environmental sciences	380	57	324	82	529	170	502	123	232	55
Mathematics	9	2	25	8	46	12	44	10	46	11
Computer sciences	237	61	286	65	293	40	172	47	232	83
Agricultural sciences	1,513	150	1,146	152	955	175	1,218	210	1,690	281
Biological sciences	1,708	463	2,262	577	2,800	832	2,189	633	2,076	676
In universities and colleges	1,275	324	1,549	396	1,374	451	1,169	292	1,047	277
In medical schools	433	139	712	181	1,426	381	1,020	341	1,029	399
Medical sciences	1,948	505	2,253	647	2,961	807	3,823	999	3,292	813
In universities and colleges	613	203	306	61	673	151	669	160	605	177
In medical schools	1,335	302	1,948	587	2,288	655	3,154	839	2,687	636
Psychology	132	23	115	25	164[1]	36[1]	78	16	159	50
Social sciences	202	38	329	48			221	44	249	66
Other, not elsewhere classified	603	139	418	70	380	79	420	106	206	71

[1] Psychology and social sciences were not differentiated in the questionnaire item for the 1990–1991 period.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-5. Number of institutions performing major repair/renovation of science and engineering research facilities by institution type and control: 1986–1995

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	288	248	244	252	230
Doctorate-granting	224	204	212	196	184
Top 100 in research expenditures	96	85	91	90	79
Other	128	119	121	106	105
Nondoctorate-granting	64	44	32	56	46
Public	210	164	155	137	134
Doctorate-granting	163	133	137	112	107
Nondoctorate-granting	47	31	17	25	27
Private	78	84	89	115	95
Doctorate-granting	61	71	75	84	77
Nondoctorate-granting	17	14	15	31	18

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-6. For major projects to repair/renovate science and engineering research space, estimated net assignable square feet (NASF) of research space affected and estimated total cost of this repair/renovation by institution type and control, and year of project start: 1986–1995

[NASF in thousands; dollars in millions]

Total	13,431	838	11,449	1,010	8,655	826	9,133	837	9,219	978
Doctorate-granting	12,841	793	10,993	979	8,352	794	8,811	803	8,710	914
Top 100 in research expenditures	9,124	596	7,781	483	5,622	633	6,028	623	5,517	668
Other	3,717	197	3,212	496	2,730	161	2,783	180	3,193	246
Nondoctorate-granting	590	45	456	30	303	32	323	34	509	64
Public	8,745	436	8,223	699	5,460	449	6,011	522	5,641	518
Doctorate-granting	8,307	399	7,890	674	5,295	431	5,877	508	5,295	480
Nondoctorate-granting	438	37	333	25	165	18	134	14	346	38
Private	4,685	402	3,226	311	3,195	376	3,123	315	3,578	460
Doctorate-granting	4,534	393	3,102	305	3,057	363	2,934	295	3,415	434
Nondoctorate-granting	152	9	123	6	137	14	189	20	163	26

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-7. Number of research-performing institutions performing major repair/renovation of science and engineering research facilities by field: 1986–1995

Total	288	248	244	252	230
Engineering	118	106	71	85	66
Physical sciences	98	104	98	104	89
Environmental sciences	40	26	37	38	26
Mathematics	25	26	12	6	9
Computer sciences	49	16	29	20	16
Agricultural sciences	32	24	25	21	23
Biological sciences	137	138	133	146	125
In universities and colleges	112	121	96	104	100
In medical schools	44	44	59	53	36
Medical sciences	85	85	103	93	84
In universities and colleges	28	32	41	36	40
In medical schools	75	70	92	74	56
Psychology	35	20	44[1]	18	16
Social sciences	29	17		20	17
Other, not elsewhere classified	17	17	23	8	5

[1] Psychology and social sciences were not differentiated in the questionnaire for the 1990–1991period.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
In the biological and medical sciences, the total number of institutions is less than the sum of the subcategories because medical schools that are part of larger universities are not counted
twice.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-8. For projects to repair/renovate science and engineering research space, estimated net assignable square feet (NASF) of research space affected, and estimated total cost of this repair/renovation by field: 1986–1995

[NASF in thousands; dollars in millions]

[illegible]	1986–1987		1988–1989		1990–1991		1992–1993		[illegible]	
	NASF	Cost	NASF	Cost	NASF	[illegible]	NASF	Cost	NASF	Cost
Total	13,431	838	11,449	1,010	8,606	826	9,134	837	9,219	978
Engineering	2,716	141	1,630	361	1,159	82	1,932	139	1,789	152
Physical sciences	1,746	105	1,928	165	1,680	151	1,725	134	1,605	202
Environmental sciences	362	21	930	18	450	16	418	31	194	17
Mathematics	37	4	136	11	39	6	11	2	78	8
Computer sciences	193	17	144	9	164	21	54	4	200	23
Agricultural sciences	628	20	530	23	391	35	335	14	913	79
Biological sciences	3,611	225	3,461	201	2,356	258	2,169	224	1,995	226
In universities and colleges	2,555	146	2,203	126	1,055	135	1,304	108	1,252	146
In medical schools	1,056	78	1,259	76	1,301	123	864	116	743	80
Medical sciences	3,236	226	2,302	185	2,070	219	1,962	262	2,194	241
In universities and colleges	737	52	705	24	627	53	284	28	250	39
In medical schools	2,499	174	1,598	161	1,443	166	1,678	234	1,944	202
Psychology	256	14	88	11	254[1]	31[1]	141	10	94	12
Social sciences	181	36	119	8			236	10	103	14
Other, not elsewhere classified	465	30	180	17	42	6	152	7	49	4

[1] Psychology and social sciences were not differentiated in the questionnaire item for the 1990–1991period.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, 1992) represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 3-9. Number of research-performing institutions and total project completion cost of all repair/renovation projects between $5,000 and $100,000 for science and engineering research facilities by institution type and control: 1992 and 1993
[Current dollars in millions]

Total	338	241.1
Doctorate-granting	233	208.1
Top 100 in research expenditures	77	179.4
Other	156	28.7
Nondoctorate-granting	104	32.9
Public	186	171.3
Doctorate-granting	135	166.9
Nondoctorate-granting	51	4.4
Private	153	69.8
Doctorate-granting	99	41.2
Nondocturate-granting	54	28.6

NOTES: Project costs reflect research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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Table 3-10. Total cost of repair/renovation and construction projects in laboratory animal facilities planned for 1993 and 1994 by institution type and control: 1994
[Dollars in millions]

[illegible]	[illegible]	[illegible]
Total	147	303.4
Doctorate-granting	110	301.7
Top 100 in research expenditures	59	274.8
Other	51	26.9
Nondoctorate-granting	38	1.8
Public	92	168.9
Doctorate-granting	69	167.8
Nondoctorate-granting	23	1.1
Private	56	134.6
Doctorate-granting	41	133.9
Nondoctorate-granting	15	0.6

NOTES: Refers to institutions reporting any space in laboratory animal facilities that is subject to government regulations concerning the humane care and use of laboratory animals.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 4-1. Research-performing institutions' amounts of funds for science and engineering research facility construction projects by institution type and source of funds: 1986–1993

[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other
		Federal	State/local					
1986–1987:								
Total	2050.6	145.4	779.1	487.5	289.8	313.1	3.1	31.9
Doctorate-granting	1887.7	129.9	690.4	462.5	289.2	280.1	3.1	31.9
Nondoctorate-granting	162.9	15.5	88.7	25.1	0.6	33.1	0	0
1988–1989:								
Total	2464.5	352	890.7	459.2	343.8	320.2	95.9	0.8
Doctorate-granting	2315	339	807.3	411.7	338.3	320.2	95.9	0.8
Nondoctorate-granting	149.5	13	83.4	47.5	5.6	0	0	0
1990–1991:								
Total	2975.6	476.3	956.6	352.6	394.1	727.5	35.4	33.1
Doctorate-granting	2847.3	465.5	947.9	348	390.3	627	35.4	33.1
Nondoctorate-granting	128.4	10.8	8.7	4.6	3.8	100.5	0	0
1992–1993:								
Total	2810.8	459.3	968	301	374.3	620.3	39	50
Doctorate-granting	2720	452	893	297	374	616	39	48
Nondoctorate-granting	91.8	7.3	75	4	0.3	4.3	0	2

NOTES: All 1992 –1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.

Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.

Because of rounding, components may not add to totals.

Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 4-2. Public research-performing institutions' amounts of funds for science and engineering research facility construction projects by institution type and source of funds: 1986–1993
[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other
		Federal	State/local					
1986–1987:								
Total	1354.8	40.3	754.5	259.1	109.2	189.5	2.4	0.2
Doctorate-granting	1220.4	31.4	665.9	238.6	109.2	173.1	2.4	0.2
Nondoctorate-granting	134.4	8.9	88.5	20.6	0	16.4	0	0
1988–1989:								
Total	1727	274.3	838.4	192.9	256.3	154.5	8.1	0.6
Doctorate-granting	1625.6	268.3	755	184.8	252.4	154.6	8.1	0.6
Nondoctorate-granting	101.4	6	83.4	8.1	3.9	0	0	0
1990–1991:								
Total	2020	388.1	809.4	139.1	270.2	398.6	7.8	6.9
Doctorate-granting	1906.4	382.3	800.7	139.1	270.2	299.4	7.8	6.9
Nondoctorate-granting	113.7	5.8	8.7	0	0	99.2	0	0
1992–1993:								
Total	2016.4	325.8	929.8	152.5	198.28	390.5	16.2	3.3
Doctorate-granting	1929.9	320.1	854.4	152.5	198.1	386.9	16.2	1.7
Nondoctorate-granting	86.4	5.7	75.4	0	0.18	3.6	0	1.6

NOTES: All 1992 –1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.

Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.

Because of rounding, components may not add to totals.

Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 4-3. Private research-performing institutions' amounts of funds for science and engineering research facility construction projects by institution type and source of funds: 1986–1993

[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other
		Federal	State/local					
1986–1987:								
Total	695.8	105.1	24.6	228.4	180.6	123.6	0.7	31.7
Doctorate-granting	667.3	98.5	24.5	223.9	180	107	0.7	31.7
Nondoctorate-granting	28.5	6.6	0.2	4.5	0.6	16.7	0	0
1988–1989:								
Total	737.5	77.7	52.3	266.3	87.5	165.7	87.8	0.2
Doctorate-granting	689.4	70.7	52.3	226.9	85.9	165.6	87.8	0.2
Nondoctorate-granting	48.1	7	0	39.4	1.7	0	0	0
1990–1991:								
Total	955.6	88.2	147.2	213.5	123.9	328.9	27.6	26.2
Doctorate-granting	940.9	83.2	147.2	208.9	120.1	327.6	27.6	26.2
Nondoctorate-granting	14.7	5	0	4.6	3.8	1.3	0	0
1992–1993:								
Total	795.5	133.5	38.8	148.5	176.1	229.6	22.7	46.4
Doctorate-granting	789.7	132.2	38.8	144.6	175.8	229.3	22.7	46.4
Nondoctorate-granting	5.8	1.3	0	3.9	0.3	0.3	0	0

NOTES: All 1992–1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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Table 4-4. Research-performing institutions' amounts of funds for science and engineering research facility repair/renovation projects by institution type and sourceof funds: 1986–1993
[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other
		Federal	State/local					
1986–1987:								
Total	837.9	27.3	233.1	101	328	137.6	3.8	7.4
Doctorate-granting	792.7	23.5	201.7	99.3	325.2	132.2	3.8	7.4
Nondoctorate-granting	45.2	3.7	31.4	1.6	3	5.4	0	0
1988–1989:								
Total	1,009.5	61.1	233.8	52.1	570.8	69.9	15.9	5.2
Doctorate-granting	979.2	55.9	226.6	42.1	563.6	69.8	15.9	5.2
Nondoctorate-granting	30.3	5.1	7.1	10	7.2	0	0	0
1990–1991:								
Total	825.7	49	243	100.6	355.4	66.4	8	3.2
Doctorate-granting	794.1	48.3	227.3	97.5	346.7	63.2	8	3.2
Nondoctorate-granting	31.6	0.7	15.8	3.2	8.7	3.3	0	0
1992–1993:								
Total	835.4	56.2	252.4	73	332	81	27	16.2
Doctorate-granting	803	47	244	66	325	79	27	16.2
Nondoctorate-granting	32.4	9.2	8.4	7	7	2	0	0

NOTES: All 1992–1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.
Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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Table 4-5. Public research-performing institutions' amounts of funds for science and engineering research facility repair/renovation projects by institution type and source of funds: 1986–1993
[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institution funds	Tax-exempt bonds	Other debt	Other
		Federal[1]	State/local					
1986–1987:								
Total	435.9	13.2	226.6	15	155.1	25.5	0.3	0.2
Doctorate-granting	399.3	10.9	195.1	14.3	153.4	25	0.3	0.2
Nondoctorate-granting	36.6	2.2	31.4	0.6	1.8	0.5	0	0
1988–1989:								
Total	698.5	31.4	229.3	22	403.5	6.6	4.9	0
Doctorate-granting	673.9	26.5	222.1	13.9	399.8	6.5	4.9	0
Nondoctorate-granting	24.6	4.9	7.1	8.1	3.6	0	0	0
1990–1991:								
Total	449.3	24.6	233.5	43.8	134.6	12.1	0	0.6
Doctorate-granting	431.3	23.9	217.8	43.8	133.1	12.1	0	0.6
Nondoctorate-granting	18	0.7	15.8	0	1.5	0	0	0
1992–1993:								
Total	520.4	34.3	237.1	24.9	154.4	55.9	1.6	11.9
Doctorate-granting	507.9	31.1	228.5	24.9	153.8	55.9	1.6	11.9
Nondoctorate-granting	12.4	3.2	8.6	0	0.6	0	0	0

NOTES: All 1992–1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.

Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only. Because of rounding, components may not add to totals.

Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 4-6. Private research-performing institutions' amounts of funds for science and engineering research facility repair/renovation projects by institution type and source of funds: 1986–1993

[Current dollars in millions]

Year of project start and type of institution	Total	Government		Private donations	Institution funds	Tax-exempt bonds	Other debt	Other
		Federal	State/local					
1986–1987:								
Total	402	14.1	6.5	86	172.9	112.1	3.5	7.2
Doctorate-granting	393.4	12.6	6.6	85	171.8	107.2	3.5	7.2
Nondoctorate-granting	8.6	1.5	0	1	1.2	4.9	0	0
1988–1989:								
Total	311	29.7	4.5	30.1	167.3	63.3	11	5.2
Doctorate-granting	305.3	29.4	4.5	28.2	163.8	63.3	11	5.2
Nondoctorate-granting	5.7	0.2	0	1.9	3.6	0	0	0
1990–1991:								
Total	376.4	24.4	9.5	56.8	220.8	54.3	8	2.6
Doctorate-granting	362.8	24.4	9.5	53.7	213.6	51.1	8	2.6
Nondoctorate-granting	13.6	0	0	3.2	7.2	3.3	0	0
1992–1993:								
Total	314.6	21.8	15.03	47.5	176.3	24.5	25.2	4.3
Doctorate-granting	294.7	16.04	15.03	40.7	170.5	22.9	25.2	4.2
Nondoctorate-granting	19.9	5.8	0	6.8	5.8	1.6	0	0

NOTES: All 1992–1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.

Findings are limited to projects with estimated total costs at completion of $100,000 or more for research space. Estimates are prorated to reflect all research components only. Because of rounding, components may not add to totals.

Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

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Table 4-7. Number of private research-performing institutions by status relative to the $15 million limit on institution tax-exempt bonds: 1988, 1990, 1992, and 1994

[illegible]	[illegible]				[illegible]				[illegible]			
	1988	1990	1992	1994	1988	1990	1992	1994	1988	1990	1992	1994
Total	205	206	206	220	103	103	102	124	130	130	104	96
Have reached the limit	20	23	28	28	20	23	28	28	0	0	0	0
Have not, but expect to reach the limit in next 2 fiscal years	9	12	2	12	8	12	2	7	1	0	0	5
Have not, and do not expect to reach the limit in next 2 fiscal years	176	171	176	180	75	68	72	88	102	103	104	92

NOTES: All 1992–1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.
Because of rounding, components may not add to totals.

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 5-1. Percentage of institutions with need for capital projects to construct and/or to repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, by institution type, project type, and control: 1994

[redacted]	[redacted]	[redacted]	[redacted]
Total	40	26	33
Doctorate-granting	51	35	43
Top 100 in research expenditures	60	52	48
Other	47	28	41
Nondoctorate-granting	26	15	20
Public	44	31	36
Doctorate-granting	56	44	47
Nondoctorate-granting	26	12	21
Private	35	21	29
Doctorate-granting	42	23	38
Nondoctorate-granting	25	19	18

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 5-2. Expenditures for needed capital projects to construct or repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, by institution type, project type, and control: 1994
[Current dollars in million]

[illegible]	[illegible]	[illegible]
Total	4046.9	1696.8
Doctorate-granting	3848.1	1458.1
Top 100 in research expenditures	2822.7	1051.7
Other	1025.4	406.4
Nondoctorate-granting	198.7	238.7
Public	3190.6	1401.5
Doctorate-granting	3113.7	1219.6
Nondoctorate-granting	76.9	181.9
Private	856.2	295.3
Doctorate-granting	734.5	238.4
Nondoctorate-granting	121.7	56.9

NOTES: Because of rounding, components may not add to totals.
In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 5-3. Number of institutions with need for capital projects to construct or repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, by field and project type: 1994

[illegible]	[illegible]	[illegible]
Engineering	55	62
Physical sciences	78	118
Environmental sciences	27	51
Mathematics	14	46
Computer sciences	17	30
Agricultural sciences	24	24
Biological sciences:		
In universities and colleges	66	105
In medical schools	8	13
Medical sciences:		
In universities and colleges	23	27
In medical schools	20	17
Psychology	19	38
Social sciences	19	41
Other, not elsewhere classified	9	9

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 5-4. Expenditures for needed capital projects to construct or repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, by field: 1994
[Current dollars in millions]

Field	Need for capital projects to construct S&E research facilities	Need for capital projects to repair/renovate S&E research facilities
Total	4046.9	1696.8
Engineering	757.6	295.6
Physical sciences	782.9	428.4
Environmental sciences	241.1	53.2
Mathematics	46.9	52.6
Computer sciences	99.9	23.5
Agricultural sciences	294.4	88
Biological sciences	699.3	400.5
In universities and colleges	405.7	334.5
In medical schools	293.6	66.4
Medical sciences	780.1	205.8
In universities and colleges	276.2	51.5
In medical schools	503.9	154.3
Psychology	123.2	43.9
Social sciences	139.3	54.2
Other, not elsewhere classified	82.3	51.5

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-1. Total net assignable square feet (NASF) of academic space, total NASF in science and engineering (S&E) fields, and research NASF in S&E fields, in Historically Black Colleges and Universities (HBCUs); original and expanded groups of institutions: 1994

[NASF in millions]

[illegible]	[illegible]	[illegible]
Number of research-performing HBCUs	28[2]	68[2]
Total academic space[3]	14.7	19.4
Space in S&E fields	6.1	7.9
Space used for research in S&E fields	1.8	2.2

[1] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, and 1992; the expanded group is the 1994 population of all 70 research-performing HBCUs.

[2] Two of the HBCUs were determined to be out-of-scope since they had no S&E research space; data are weighted to 28 in the original group and 68 in the expanded group.

[3] Projected from responses of 46 percent of original group and 44 percent of expanded group.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-2. Total net assignable square feet (NASF) of space in science and engineering (S&E) fields and NASF used for research in Historically Black Colleges and Universities (HBCUs): 1988, 1990, 1992,and 1994

[NASF in thousands]

[illegible]	[illegible]						[illegible]					
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Number of research-performing HBCUs	29	29	29	70	28[2]	68[2]	29	29	29	70	28[2]	68[2]
Total	6,077	6,175	6,576	9,095	6,084	7,923	1,112	1,440	1,782	2,920	1,759	2,197
Engineering	777	979	1,207	1,353	1,136	1,278	152	167	285	302	315	355
Physical sciences	804	810	1,005	1,380	876	1,344	179	190	235	275	212	280
Environmental sciences	44	56	85	131	73	97	10	26	35	64	27	36
Mathematics	173	164	191	325	158	365	12	26	29	34	19	38
Computer sciences	150	114	160	283	128	278	43	30	42	53	31	52
Agricultural sciences	604	834	783	930	704	705	259	433	414	497	470	483
Biological sciences	1,130	934	1,009	2,145	1,037	1,519	232	291	375	1,258	409	639
In universities and colleges	509	546	621	1,757	581	1,063	141	170	254	1,137	250	480
In medical schools	621	388	388	388	456	456	91	121	121	121	159	159
Medical sciences	1,846	1,766	1,773	1,932	1,562	1,638	177	207	293	334	203	210
In universities and colleges	593	956	963	1,070	913	989	37	50	133	147	134	141
In medical schools	1,253	810	810	862	649	649	141	158	160	187	69	69
Psychology	119	105	86	173	106	222	14	19	16	25	18	33
Social sciences	304	322	278	438	233	367	28	47	57	78	43	61
Other, not elsewhere classified	126	91	0	5	70	109	4	4	0	0	12	14

[1] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, and 1992; the expanded group is the 1992 and 1994 population of all 70 research-performing HBCUs.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, and 1992) represent
525 institutions.
Because of rounding, components may not add to totals.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-3. Condition of research facilities at Historically Black Colleges and Universities: 1988, 1990, 1992, and 1994

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	100	100	100	100	100	100
Suitable for most highly developed and scientifically sophisticated research	36	31	34	22	31	24
Effective for most purposes	39	45	41	56	39	35
Requiring limited repair or renovation	18	18	17	14	21	25
Requiring major repair or renovation[2]	7	7	8	8	9	16

[1] Data are based on reduced sample to correspond to 1988 and 1990 surveys.

[2] Includes research space that requires replacement.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-4. Research facility construction and repair/renovation projects at Historically Black Colleges and Universities (HBCUs), by project characteristics: 1986–1993

[illegible]	[illegible]					[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Construction Projects:[2]								
Number of HBCUs with projects	11	10	6	4	3	10	9	8
Total project completion cost (current dollars in millions)	71.8	55.1	22.5	8.6	24.4	37.6	29	40.6
NASF (in thousands)	481	319	328	88	175	449	226	235
Repair/Renovation projects costing $100,000:[2]								
Number of HBCUs with projects	13	10	5	11	11	8	12	16
Total project completion cost (in millions)	14.1	16.6	11.6	8.7	13.9	21.4	9.1	14.9
NASF (in thousands)	137	308	129	106	220	177	110	225
Repair/Renovation projects costing $5,000-$99,000:								
Number of HBCUs with projects	-	-	10	13	-	21	38	-
Total project completion cost (in millions)	-	-	0.6	3.3	-	1.1	26	-

[1] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, and 1992; the expanded group is the 1992 and 1994 population of all 70 research-performing HBCUs.

[2] Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.

NOTES: All 1994 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data (1988, 1990, and 1992) represent 525 institutions.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "NASF" = net assignable square feet; "-" = data not collected

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-5. Source of funds for science and engineering research facility construction projects at Historically Black Colleges and Universities (HBCUs): 1986–1993

[Current dollars in millions]

Number of institutions	29	29	29	70	28[3]	68[3]
Total	71.8	55.1	22.5	37.6	8.6	28.8
Federal Government	32.7	35	12.1	13	6.5	4.6
State / local government	25.8	11.5	6.3	18	2	22.4
Private donations	11.1	7.7	0	0	0	0
Institutional funds	2.3	0.9	4.2	4.6	0	0.2
Debt financing	0	0	0	0	0	0
Tax-exempt bonds	0	0	0	0	0	0
Other debt	0	0	0	0	0	0
Other sources	0	0	0	1.9	0	1.6

[1] Data for the first two time periods were heavily inflated by construction activity at a single institution, which accounted for a substantial fraction of the total dollar amount shown.

[2] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, 1992; the expanded group is the 1992 and 1994 population of all research-performing HBCUs.

[3] Two of the HBCUs were determined to be out-of-scope since they had no S&E researchspace; data are weighted to 28 in the original panel and 68 in the expanded panel.

NOTES: All 1992 or 1993 data are national estimates derived from samples representing the 565 largest research-performing U.S. universities and colleges; all previous years' data represent 525 institutions.
Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only.
Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-6. Sources of funds for science and engineering research facilities repair/renovation projects at Historically Black Colleges and Universities (HBCUs): 1983–1993

[Current dollars in millions]

Number of institution	29	29	29	70	28[2]	68[2]
Total	14.1	16.6	11.6	21.4	8.7	9.1
Federal Government	8.7	12.9	3.5	3.6	5	4.8
State / local government	4.9	0.8	8	17.7	2.1	2.1
Private donations	0.5	2	0.1	0.2	1.7	1.7
Institutional funds	0	0.1	0.1	0.1	0.1	0.4
Debt financing	0	0	0	0	0	0
Tax-exempt bonds	0	0	0	0	0	0
Other debt	0	0	0	0	0	0
Other sources	0	0	0	0	0	0

[1] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, and 1992; the expanded group is the 1992 and 1994 population of all 70 research-performing HBCUs.

[2] Two of the HBCUs were determined to be out-of-scope since they had no S&E research space; data are weighted to 28 in the original group and 28 in the expanded group.

NOTES: Findings are limited to projects with estimated total cost at completion of $100,000 or more for research space. Estimates are prorated to reflect research components only. Because of rounding, components may not add to totals.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 6-7. Historically Black Colleges and Universities (HBCUs) with need for capital projects to construct or repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, by field and project type: 1994[1]

[Current dollars in millions]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	14	104.1	9	13.4
Engineering	2	43	5	4.7
Physical sciences	6	17.9	6	4.5
Environmental sciences	0	0	0	0
Mathematics	1	2.3	2	0.2
Computer sciences	1	3.3	3	0.2
Agricultural sciences	1	4	1	0.3
Biological sciences	9	18.3	3	0.8
In universities and colleges	8	16	3	0.8
In medical schools	1	2.3	0	0
Medical sciences	2	10.6	1	3
In universities and colleges	1	8	0	0
In medical schools	1	2.6	1	3
Psychology	1	1.5	1	0
Social sciences	1	8	1	0.1
Other, not elswhere classified	1	0.2	0	0

[1] Data in this table are based on the expanded group of all 17 research-performing HBCUs included in the survey since 1992.

NOTES: Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.
In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilites at Universities and Colleges

Table 6-8. Laboratory animal facilities at Historically Black Colleges and Universities (HBCUs): 1994

[illegible]	[illegible]	[illegible]
Total NASF in laboratory animal facilities (in thousands)	225	300
Research NASF in laboratory animal facilities (in thousands)	141	148
Regulation status (in percentage of NASF):		
Fully meets government regulations	0.84	0.82
Needs limited repair to meet regulations	0.1	0.13
Needs major work or replacement to meet regulations	6	5
Cost of planned construction and repair/renovation of laboratory animal facilities, FY 1994 and FY 1995 (dollars in thousands)	345	429

[1] The original group consists of the 29 HBCUs also surveyed in 1988, 1990, and 1992; the expanded group is the 1992 and 1994 population of all 70 research-performing HBCUs.

NOTES: Because of rounding, components may not add to totals.

KEY: "NASF" = net assignable square feet

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 7-1. Science and engineering (S&E) space at predominantly undergraduate institutions[1]: 1994

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total: All nondoctorates	246	29.4	5.4	18.4	22,109
Nondoctorate HBCUs[2]	58	4.8	1.3	27.1	23,002
Predominantly undergraduate	188	24.7	4.2	16.8	21,834
Comprehensive universities	136	19.7	3.3	15.7	22,484
Liberal arts colleges	52	5	1.1	21.1	20,133

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

[2] All nondoctorate HBCUs are included, not just those from the panel of 29. Therefore, results cannot be compared to those in Chapter 6.

KEY: "NASF" = net assignable square feet; "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-2. Number of institutions with science and engineering research space at predominantly undergraduate institutions[1] by field: 1994

[illegible]	[illegible]	[illegible]	[illegible]
Total	50	133	50
Engineering	15	61	6
Physical sciences	39	125	50
Environmental sciences	7	56	30
Mathematics	24	59	31
Computer sciences	19	82	27
Agricultural sciences	13	30	1
Biological sciences	50	116	47
In universities and colleges	50	116	47
In medical schools	0	0	0
Medical sciences	12	55	0
In universities and colleges	12	55	0
In medical schools	0	0	0
Psychology	22	99	41
Social sciences	25	76	38
Other, not elsewhere classified	4	5	3

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-3. Amount of science and engineering research space at predominantly undergraduate institutions[1] by field: 1994

[NASF in thousands]

Total	1334.1	3057.3	1046.9
Engineering	216.5	410.3	8.8
Physical sciences	195.9	718	360.7
Environmental sciences	33.8	179.9	78.3
Mathematics	30.9	68.8	32.8
Computer sciences	36.7	177.4	24.2
Agricultural sciences	382.9	90.2	1.9
Biological sciences	356.2	708.7	324.5
In universities and colleges	356.2	708.7	324.5
In medical schools	0	0	0
Medical sciences	17.1	157.9	0
In universities and colleges	17.1	157.9	0
In medical schools	0	0	0
Psychology	21.1	241	150.8
Social sciences	37.1	233.6	55.3
Other, not elsewhere classified	5.6	71.5	9.3

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

KEY: "NASF" = net assignable square feet; "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-4. Condition of science and engineering research space at predominantly undergraduate institutions[1] by type: 1994
[Percentage of space]

Total: All nondoctorates	16	42	26	14	2	100
Nondoctorate HBCUs[2]	29	30	23	18	1	100
Predominantly undergraduate	12	46	28	12	3	100
Comprehensive universities	10	44	28	13	3	100
Liberal arts colleges	17	46	25	9	2	100

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

[2] All nondoctorate HBCUs are included, not just those from the panel of 29. Therefore, results cannot be compared to those in Chapter 6.

NOTES: Because of rounding, components may not add to 100.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-5. Estimated total of capital project costs for projects to construct or repair/renovate science and engineering research facilities at predominantly undergraduate institutions[1]: 1992–1993

[Current dollars in millions]

[illegible]	[illegible]	[illegible]	[illegible]
Total: All nondoctorates	92.3	34.5	126.8
Nondoctorate HBCUs[2]	27.1	7.2	34.3
Predominantly undergraduate	65.2	27.2	92.4
Comprehensive universities	60.2	16.5	76.7
Liberal arts colleges	5	10.7	15.8

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

[2] All nondoctorate HBCUs are included, not just those from the panel of 29. Therefore, results cannot be compared to those in Chapter 6.

NOTES: Because of rounding, components may not add to 100.
Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-6. For projects to construct science and engineering research facilities at predominantly undergraduate institutions[1], the number of institutions and estimated total cost of projects by field and institution type

[Current dollars in millions]

Total	8	27.1	24	60.2	7	5
Engineering	1	2	6	4	0	0
Physical sciences	0	0	4	15.2	5	3.9
Environmental sciences	1	1.8	4	5	0	0
Mathematics	0	0	3	8.9	1	0.2
Computer sciences	0	0	6	5.5	0	0
Agricultural sciences	2	2.9	0	0	0	0
Biological sciences	2	19.9	9	9.1	3	0.9
In universities and colleges	2	19.9	9	9.1	3	0.9
In medical schools	0	0	0	0	0	0
Medical sciences	0	0	3	4.6	0	0
In universities and colleges	0	0	3	4.6	0	0
In medical schools	0	0	0	0	0	0
Psychology	0	0	6	7	0	0
Social sciences	0	0	0	0	0	0
Other, not elsewhere classified	2	0.6	2	0.8	0	0

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-7. For projects to conduct repair/renovation of science and engineering research facilities at predominantly undergraduate institutions,[1] the number of institutions and estimated total costs of projects by field and institution type

[Current dollars in millions]

Total	9	7.2	22	16.5	25	10.7
Engineering	1	0.5	1	0.8	0	0
Physical sciences	4	2.9	10	8	11	3.1
Environmental sciences	1	0.1	3	2.1	5	3
Mathematics	1	0.5	0	0	2	0.2
Computer sciences	1	0.1	6	1.1	0	0
Agricultural sciences	1	1.6	0	0	0	0
Biological sciences	2	0.5	12	4.5	6	3.8
In universities and colleges	2	0.5	9	3.8	6	3.8
In medical schools	0	0	3	0.7	0	0
Medical sciences	2	0.6	0	0	0	0
In universities and colleges	2	0.6	0	0	0	0
In medical schools	0	0	0	0	0	0
Psychology	0	0	0	0	4	0.6
Social sciences	0	0	0	0	0	0
Other, not elsewhere classified	1	0.4	0	0	0	0

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-8. Amount and percentage of funds for science and engineering research facility capital projects at predominantly undergraduate institutions[1] by institution type and source of funds: 1992–1993

[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]					
	[Current dollars in millions]							
Nondoctorate HBCUs	34.4	6.8	24	1.4	0.6	0	0	1.6
Comprehensive universities	74.5	5	60	5.3	0.6	3.7	0	0.01
Liberal arts colleges	15.8	4.1	0	4.1	5.7	1.8	0	0.05
	[Percentage of total funding]							
Nondoctorate HBCUs	100	19.8	70	4.1	1.5	0	0	4.6
Comprehensive universities	100	6.7	80.5	7.1	0.7	4.9	0	0
Liberal arts colleges	100	25.9	0	25.9	36.1	11.4	0	0.3

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: Because of rounding, components may not add to 100.
Dollar amounts are reported in current dollars, unadjusted for inflation. See Table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 7-9. Expenditures for needed capital projects to construct or repair/renovate science and engineering research facilities, as identified in an institutional plan, at predominantly undergraduate institutions[1] by institution type and project type: 1994

[Current dollars in millions]

[illegible]	[illegible]	[illegible]	[illegible]
Total: All nondoctorates	198.7	238.7	437.4
Nondoctorate HBCUs[2]	75.2	5.6	80.8
Predominantly undergraduate	123.5	233.1	356.6
Comprehensive universities	26.4	178.3	204.7
Liberal arts colleges	97.1	54.8	151.9

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

[2] All nondoctorate HBCUs are included, not just those from the panel of 29. Therefore, results cannot be compared to those in Chapter 6.

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: *National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges*

Table 7-10. Expenditures for needed capital projects to construct or repair/renovate science and engineering research facilites, as identified in an institutional plan, at predominantly undergraduate instititutions[1] by institution type and field: 1994

[Current dollars in millions]

Total	80.8	204.7	151.9
Engineering	20.9	11.3	0
Physical sciences	20.4	84.4	62
Environmental sciences	0	9.4	12
Mathematics	2.3	12.3	3
Computer sciences	3.5	0.8	2.5
Agricultural sciences	0.7	0	0
Biological sciences	16.8	72.4	27.7
In universities and colleges	16.8	72.4	27.7
In medical schools	0	0	0
Medical sciences	8	2.7	0
In universities and colleges	8	2.7	0
In medical schools	0	0	0
Psychology	0.2	4.3	38.3
Social sciences	8.1	6.8	0.8
Other, not elsewhere classified	0.2	0.1	5.6

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-11. Expenditures for needed capital projects to construct science and engineering research facilities, as identified in an institutional plan, at predominantly undergraduate institutions[1] by institution type and field: 1994

[Current dollars in millions]

[illegible]	[illegible]	[illegible]	[illegible]
Total	75.2	26.4	97.1
Engineering	19	10.9	0
Physical sciences	17.9	4	37.8
Environmental sciences	0	0	5.9
Mathematics	2.3	0	1.5
Computer sciences	3.3	0.6	1.6
Agricultural sciences	0.4	0	0
Biological sciences	16	3.5	14.9
In universities and colleges	16	3.5	14.9
In medical schools	0	0	0
Medical sciences	8	0	0
In universities and colleges	8	0	0
In medical schools	0	0	0
Psychology	0.2	0.6	29.8
Social sciences	8	6.8	0
Other, not elsewhere classified	0.2	0	5.6

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table 7-12. Expenditures for needed capital projects to repair/renovate science and engineering (S&E) research facilities, as identified in an institutional plan, at predominantly undergraduate institutions[1] by institution type and field: 1994
[Current dollars in millions]

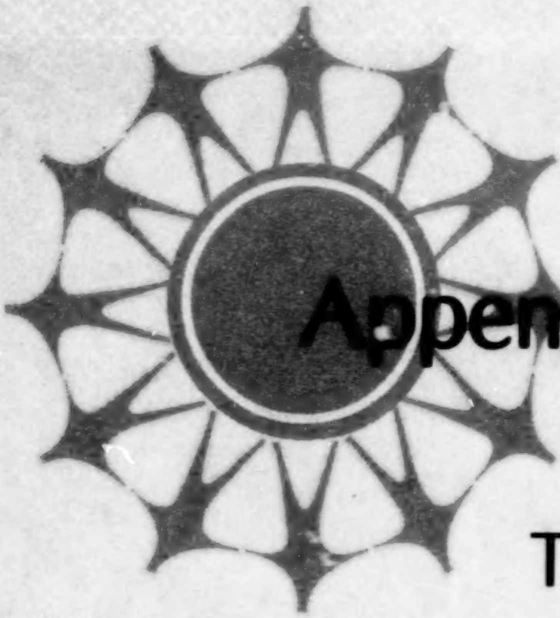
[illegible]	[illegible]	[illegible]	[illegible]
Total	5.6	178.3	54.8
Engineering	1.9	0.4	0
Physical sciences	2.5	80.4	24.2
Environmental sciences	0	9.4	6.1
Mathematics	0	12.3	1.5
Computer sciences	0.2	0.2	0.9
Agricultural sciences	0.3	0	0
Biological sciences	0.8	68.9	12.8
In universities and colleges	0.8	68.9	12.8
In medical schools	0	0	0
Medical sciences	0	2.7	0
In universities and colleges	0	2.7	0
In medical schools	0	0	0
Psychology	0	3.7	8.5
Social sciences	0.1	0	0.8
Other, not elsewhere classified	0	0.1	0

[1] The Carnegie Classification of Institutions of Higher Education is used to distinguish between two different groups of predominantly undergraduate institutions: comprehensive universities, those that offer a liberal arts program along with other programs such as engineering, business administration, or nursing; and liberal arts colleges, those that primarily award bachelor's degrees and that grant more than half of their degrees in the liberal arts.

NOTES: In order to obtain an estimate of needed funding, institutions were asked to report whether an approved institutional plan existed that included "any deferred space that requires repair/renovation or new construction." Four critieria were used to define deferred space: (1) the space must be necessary to meet the critical needs of current faculty or programs; (2) construction must not be scheduled to begin during fiscal years 1994–1995; (3) construction must not currently have funding; and (4) the space must not be developing new programs or expanding the number of faculty.
Dollar amounts are reported in current dollars, unadjusted for inflation. See table A-5 in the Technical Notes for the inflation adjustment used in Volume I of this report.

KEY: "HBCUs" = Historically Black Colleges and Universities

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges



Appendix A

Technical Notes

Technical Notes

This appendix discusses the study methodology as well as various other technical aspects that the reader should consider when interpreting the data presented in this report. In addition to the current 1994 survey, the discussion includes the original 1988 survey, the 1990 survey, and the 1992 survey. The following topics are covered:

- Universe and sample
- The surveys
- Data collection and response rates
- Item nonresponse
- Weighting
- Reliability of survey estimates
- Data considerations, definitions, and limitations

Universe and Sample

1988 Survey

The 1988 survey was designed to provide estimates for all research-performing academic institutions, as defined in the National Science Foundation's (NSF) Fiscal Year (FY) 1983 Survey of Scientific and Engineering Expenditures at Universities and Colleges. The universe datafile for the 1983 expenditures survey included *all* universities and colleges that offered a master's or doctorate degree in science and engineering (S&E), all others that reported separately budgeted S&E research and development (R&D) expenditures of $50,000 or more, and all Historically Black Colleges and Universities (HBCUs) that reported any R&D expenditures. This datafile represented the most recent available universe survey of R&D expenditures at academic institutions. The datafile contained a total of 566 institutions.

All HBCUs in the frame were included in the sample with certainty (N = 30), and a stratified probability sample of 223 institutions was selected from among the remaining institutions in the frame. These institutions were first stratified by control (public versus private) and highest degree awarded in S&E (doctorate-granting versus nondoctorate-granting). A minimum sample size of 25 was set for

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each of the four resulting strata, and the remaining sample size was allocated to strata in proportion to the "size" of each stratum. Stratum size was defined as the square root of the aggregate R&D expenditures in S&E of the institutions in the stratum. Academically administered Federally Funded Research and Development Centers were excluded from this survey. Within strata, institutions were sampled with probability proportionate to size. Again, size was defined as the square root of the institution's fiscal year 1983 R&D expenditures.

Following the selection of an initial sample of 253 institutions, NSF determined that several of the sampled institutions were out of the scope of the survey. Out-of-scope institutions included those in outlying territories, military academies, and three highly specialized institutions considered inappropriate, given the nature of their programs. Elimination of these out-of-scope cases reduced the final sample to 247 institutions, of which 29 were HBCUs and 99 had (or were) medical schools.

Institutions in the sample accounted for more than 75 percent of all academic R&D expenditures in fiscal year 1983 and encompassed at least 70 percent of the spending in each major S&E discipline. The sample represented a weighted national total of 525 institutions. The composition of this survey universe, by type of institution, is shown in Table A-1.

Table A-1. Number of institutions in the survey universe of research-performing universities and colleges: weighted estimates, 1988

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	525	296	200	29
Doctorate-granting	293	190	100	3
Top 100 in research expenditures	100	69	31	0
Other	193	121	69	3
Nondoctorate-granting	232	106	100	26

[1] HBCU refers to Historically Black Colleges and Universities.

SOURCE: National Science Foundation/SRS, 1988 Survey of Scientific and Engi[illegible] Research Facilities at Universities and Colleges

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1990 Survey

The institution sample for the 1990 survey was the same as for the 1988 survey, except for these two changes:

- The sample was updated to reflect recent R&D patterns as shown in NSF's fiscal year 1988 R&D expenditures survey, which collected expenditures data for all institutions in the survey frame for the first time since 1983. School-by-school comparisons of these two databases resulted in the identification of 12 institutions whose 1988 R&D expenditures would have given them substantially higher probabilities of selection than they had using 1983 expenditures. These 12 institutions were made certainty selections for the 1990 survey. Five were already in the sample, having been noncertainty selections in the 1988 study; the other 7 were added to the sample for the 1990 survey.

- One institution from the 1988 sample became out of scope when it distributed its assets among other institutions in the same state system. Therefore, this institution was eliminated from the sample.

The sample changes noted above produced a net increase of 6 institutions, increasing the sample size to 253 in 1990. The universe represented by the sample, however, did not change. The sample design for the 1990 survey is summarized in Table A-2.

1992 Survey

The institution universe and sample for the 1992 survey were the same as for the 1990 survey, except for three changes:

- Shortly after the sample for the 1990 facilities survey was selected, NSF conducted a universe survey of all HBCUs and identified an expanded group of 70 that reported separately budgeted R&D expenditures in S&E disciplines. A sample of 46 of these 70 institutions was selected for the 1992 facilities survey, with probability proportionate to size. Size was measured as the square root of the institution's reported 1989 R&D expenditures (a minimum size measure of $10,000 was used to afford the smallest institutions some possibility of selection).

- The sample was expanded to include all institutions in the top 100 in 1988 R&D expenditures. Only two institutions from this analytically important category were not already in the sample, and they were made certainty selections in 1992.

- To improve the precision of estimates for nondoctorate-granting institutions, an expanded sample of 91 institutions in this category was selected (excluding HBCUs, which were sampled separately). The sample included all (10) public institutions with1988 R&D expenditures of $2 million or more, and all (11) private institutions with 1988 expenditures of $1 million or more. Institutions with R&D expenditures below these cutoffs were sampled with equal selection probabilities.

Of the 91 sampled nondoctorate-granting institutions, 9 were later determined to be out of scope, since they reported in the 1992 facilities survey that they had no S&E research space and also reported in the1988 R&D expenditures survey (which provided the basis for the sampling frame) that they had less than $50,000 in separately budgeted R&D expenditures. The exclusion of these out-of-scope institutions reduced the sample of nondoctorate-granting institutions to 82. The sample design for the 1992 survey is summarized in Table A-2.

1994 Survey

The institution universe and sample for the 1994 survey closely matched the 1992 survey, with the following exceptions:

- The 1991 R&D expenditures survey information was used to generate the top 100 stratum. Three institutions were added to the top 100 list, and three institutions were moved out. The expenditures data also were used to calculate the measure of size for the doctorate-granting institutions. The 1988 expenditures survey data were used to calculate size measures for the nondoctorate-granting institutions, since subsequent surveys did not yield complete information for the nondoctorate-granting institutions.
- Institutions expending less than $50,000 in R&D in S&E fields were removed from the frame prior to sampling. In 1992, they were selected with probability proportionate to size and then excluded after contact.
- FICE codes were updated for 50 institutions.[1]
- Six institutions were misclassified with the 1992 sampling list as nondoctorate-granting, when in fact they did award S&E doctorates. These misclassifications were corrected.
- Random (rather than systematic) draws from the strata were employed.

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[1] This is the Federal Interagency Commission on Education number assigned by the Department of Education. Numbers beginning with 66 are for accredited institutions which have not yet receives a FICE number. These are identification numbers for the record file only.

- The HBCUs selected with certainty were redefined to include 28 from the 1990 list,[2] plus all of the new institutions selected with certainty in 1992. This meant that a total of 33 HBCUs was selected with certainty and 12 others were selected with probability proportionate to size.

Of the 314 sampled institutions, 5 nondoctorate-granting institutions were later determined to be out of scope, since they reported no S&E research space. The exclusion of these out-of-scope institutions reduced the sample to 309.

The sample design for the 1994 survey is summarized in Table A-2. (See Appendix B for a list of sampled institutions.)

Table A-2. Number of institutions in the 1990, 1992, and 1994 samples of research performing universities and colleges

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	224	257	265	138	157	161	86	100	104	29	46	44
Doctorate-granting	173	175	177	115	117	117	58	56	60	3	5	8
Top 100 in research expenditures	98	100	100	67	69	70	31	31	30	0	0	0
Other	75	75	77	48	48	47	27	27	30	3	5	8
Nondoctorate-granting ...	51	82[2]	88	23	40	44	28	42	44	26	41	36

[1] HBCU refers to Historically Black Colleges and Universities.

[2] Sample initially included nine other institutions that were later classified as out of scope of the study.

SOURCE: National Science Foundation/SRS, 1990, 1992, and 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

The Survey Questionnaire

The 1994 survey questionnaire, which is reproduced in Appendix C, updated information collected during earlier (1988, 1990, and 1992) surveys regarding several topics:

- The total net assignable square feet (NASF) of space in S&E fields, and the NASF used for organized research;
- The total amount of space in all non-science fields, and an overall space total across all academic fields;

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[2] One of the 29 HBCUs selected with certainty in 1990 was excluded because it had no current funded R&D at the time the sample was taken.

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- The amount of research space that is leased by the institution;
- The condition of research facilities in each S&E field;
- The adequacy of the current amount of research space, by S&E field;
- The project costs, NASF, and sources of funds for major construction and repair/renovation (over $100,000) activities initiated in fiscal years 1992–1993, and planned for fiscal years 1994–1995;
- Expenditures for research facility repair/renovation projects in the $5,000 to $99,999 range;
- Planned expenditures in fiscal years 1994–1995 for construction and repair/renovation of research laboratory animal facilities;
- The status of the institutions relative to the cap on tax-exempt bonds (this item is applicable to private universities and colleges only).

In addition to collecting updated information on the above topics, the 1994 questionnaire also requested information on two topics that had not been addressed in previous surveys. Specifically, in response to questions about unmet construction and repair/renovation needs for S&E research space, the 1994 questionnaire added items asking about the following issues:

- The existence of an approved institutional plan that included deferred space requiring new construction or repair/renovation;
- The number of years included in the plan;
- The estimated costs, by S&E discipline, for needed new construction and repair/renovation that the institution was not scheduled to begin during fiscal years 1994–1995.

In addition, to provide preliminary information on the effects of the requirements of the 1990 Americans with Disabilities Act (ADA), institutions were asked to estimate what portion of their repair/renovation costs from fiscal years 1992–1993 was spent to bring S&E research space into compliance with the ADA. Results from this item are not presented in the 1994 report.

Data Collection and Response Rates

In September 1993, a letter from Frederick M. Bernthal, then Acting Director of NSF, was sent to the president or chancellor of each sampled institution, asking that the institution participate in the study and that a coordinator be named for the survey. A letter of endorsement of the project signed by the heads of eight higher education associations was also enclosed. After the 2-week deadline for returning the coordinator identification card, telephone followup was conducted with all sampled institutions that had not yet identified a survey coordinator. Survey materials were mailed to the coordinators in mid-October by certified mail, and the return receipt cards served as a control log. For cards that were not returned, receipt of the survey materials was confirmed by telephone in November. The questionnaire and cover letter requested return of the completed survey by December 1, 1993. Nonresponse followup began in mid-December and continued through March 1994.

After the questionnaires were edited, a series of logic and arithmetic checks was run and additional follow-up was conducted to resolve data inconsistencies within the questionnaire or disparities between the 1992 and 1994 survey responses.

After data collection, site visits were conducted, during which NSF and project staff members met with survey respondents to discuss the questionnaire, interpretation and reliability of the data provided, and the survey procedures. The purposes of these visits were to (1) obtain information about the data provided to assist in the analysis of the findings and (2) obtain information that could be used in planning for the 1996 survey.

The overall response rate for the survey was 93 percent. As Table A-3 indicates, response rates were high for all institution categories.

Table A-3. Academic institution response rates, by category of institution: 1994

[illegible]	[illegible]	[illegible]	[illegible]
Total	309	287	93%
Non-HBCUs[1]:			
Doctorate-granting	177	166	94
Top 100 in research expenditures	100	97	97
Other	77	69	90
Nondoctorate-granting	88	74	84
Public	161	149	93
Private	104	91	88
HBCUs[1]	44	41	93

[1] HBCU refers to Historically Black Colleges and Universities.

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Item Nonresponse

After machine editing of questionnaire responses for completeness, internal consistency, and consistency with data from previous questionnaires, extensive telephone data retrieval was conducted to minimize the amount of missing or otherwise problematic responses to individual questionnaire items. One exception was the item (1a) on total academic space in all disciplines outside S&E fields. This item was difficult for some institutions to answer; and although data retrieval was attempted, the item had an unusually high nonresponse rate (17 percent).

As a result of these followup activities, most of the individual items had very low item nonresponse rates. The item with the highest non-response rate (other than item 1a) was the new item on costs to comply with the 1990 Americans with Disabilities Act (Item 4b). This item had 24 missing values (8 percent). Next highest was the item in 4a asking about the prorated total research space involved in all 1992 and 1993 repair/renovation projects costing $100,000 or more. It had 9 missing values (3 percent). Item 3, the current condition of research space by field, also had 9 missing values (3 percent) for one field: medical sciences, outside of medical school. All other data items had fewer than 9 missing values; that is, all had item response rates over 97 percent.

Missing values were imputed for questionnaire items that were involved in the data analysis. Wherever possible, missing values for items 1, 2, and 3 (amount, condition, and adequacy of existing space) were imputed on the basis of information in the institution's 1992 questionnaire. In questions 4 and 8 (on recent and planned capital projects), most missing values involved either missing costs or missing NASF, but not both. In these cases, the missing data element was imputed from the reported element, using 1992 data on average cost per NASF to estimate one from the other.

Missing values that could not be imputed using the above methods (for example, a missing value on the amount of research space at an institution that had not provided this information in the 1992 survey) were imputed using a "hot deck" approach. This approach involved imputing the missing value from a "donor" institution that did provide the needed information and that was as closely matched as possible to the institution with the missing information in terms of control, type (doctorate-granting or not), and 1988 research expenditures.

Weighting

After data collection, sampling weights were created for use in preparing national estimates from the data. First, within each weight class, a base weight was created for each institution in the sample. The base weight is the inverse of the probability of selecting the institution for the sample. Second, because some institutions in the sample did not respond to the survey, the base weights were adjusted in each weight class to account for this unit nonresponse. Finally, the weights were adjusted again to bring the number of estimated institutions in accordance with the known number of institutions in various categories. For this final "poststratification" adjustment, the institutions were classified by type (top 100 in research expenditures, other doctorate-granting, nondoctorate-granting), control, and HBCU status. The poststratified weights were used to produce the estimates shown in this report. The weighting procedures used were very similar to those used in the 1988, 1990, and 1992 studies.

Reliability of Survey Estimates

The findings presented in this report are based on a sample and are therefore subject to sampling variability. Sampling variability arises because not all institutions are included in the study. If a different sample of institutions had been selected, then the results might have been somewhat different. The standard error of an estimate can be used to measure the extent of sampling variability for that particular estimate.

One of the ways that the standard error can be used is in the construction of confidence intervals. If all possible samples were selected and surveyed under similar conditions, then the intervals of two standard errors below the estimates to two standard errors above the estimates would include the average result of these samples in about 95 percent of the cases. Since only one sample is actually selected and surveyed, the standard error must be estimated from the sample itself. The interval constructed using the estimated standard error from the sample is called a 95 percent confidence interval. Estimated standard errors for selected statistics are shown in Table A-4 on the following two pages.

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Table A-4. Standard errors (S.E.) for selected estimates

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total research square footage (in thousands):														
1988	112,062	1,864	107,443	2,004	80,627	1,419	26,815	2,019	4,619	437	82,384	1,627	29,678	868
1990	116,327	4,054	111,166	4,092	81,659	1,327	29,508	3,574	5,161	485	86,880	3,538	29,447	1,591
1992	122,015	4,079	117,373	4,185	87,508	0	29,865	4,185	4,642	316	90,815	3,612	31,200	969
1994	127,369	2,885	121,930	2,766	90,974	0	30,956	2,766	5,439	372	91,723	2,163	35,645	1,569
Difference:														
1990 & 1988	4,265	3,586	3,723	3,659	1,032	2,533	2,693	3,659	542	205	4,496	3,026	-231	1,385
1992 & 1990	5,687	6,239	6,207	6,404	5,849	1,327	358	6,412	-519	481	3,934	6,246	1,753	1,200
1994 & 1992	5,354	4,996	4,557	5,016	3,466	0	1,091	5,016	797	488	908	4,210	4,445	1,844
Repair / renovation NASF (NASF in thousands)														
1988	838	60	793	58	596	10	197	59	45	8	436	38	402	27
1990	1,010	265	979	264	483	12	496	259	30	15	699	266	311	18
1992	825	40	794	38	632	0	161	38	32	9	449	41	376	15
1994	837	45	803	44	623	0	180	44	34	5	522	41	315	21
Difference:														
1990 & 1988	172	269	186	267	-113	18	299	261	-15	22	263	265	-91	35
1992 & 1990	-185	269	-185	267	150	12	-355	262	2	39	-250	270	65	38
1994 & 1992	12	60	9	58	-9	0	19	58	2	10	73	58	-61	26
Repair / renovation cost (dollars in millions):														
1988	13,431	1,305	12,841	1,345	9,124	304	3,717	1,299	590	90	8,745	1,196	4,685	528
1990	11,449	576	10,993	488	7,781	179	3,212	464	456	229	8,223	473	3,226	237
1992	8,606	657	8,344	624	5,622	0	2,722	624	262	81	5,420	613	3,187	180
1994	9,134	632	8,811	611	6,028	0	2,783	611	323	79	6,011	496	3,123	320
Difference:														
1990 & 1988	-1,982	1,343	-1,848	1,252	-1,343	351	-505	1,276	-134	251	-522	1,233	-1,459	384
1992 & 1990	-2,841	928	-2,649	914	-2,159	179	-490	841	-194	228	-2,804	788	-38	328
1994 & 1992	528	912	467	873	406	0	61	873	61	113	591	789	-64	367

KEY: "NASF" = net assignable square feet

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table A-4. Standard errors (S.E.) for selected estimates (continued)

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
New construction costs (dollars in millions):														
1988	2,051	73	1,888	72	1,599	64	288	53	163	19	1,355	36	696	75
1990	2,464	128	2,315	131	1,558	34	757	114	150	56	1,727	108	738	62
1992	2,975	150	2,847	164	2,022	0	826	164	128	99	2,020	110	956	87
1994	2,859	195	2,766	190	2,076	0	690	190	92	42	2,063	157	796	110
Difference:														
1990 & 1988	414	140	427	128	- 41	83	469	127	-13	60	372	102	42	84
1992 & 1990	511	231	532	249	464	34	69	233	-22	116	293	165	218	115
1994 & 1992	-116	246	-81	251	54	0	-136	251	-36	107	43	192	-160	140
New construction NASF (NASF in thousands):														
1988	9,922	387	8,908	401	7,261	215	1,647	407	1,014	117	7,344	223	2,578	271
1990	10,647	851	9,840	776	6,073	86	3,767	747	807	337	8,115	805	2,532	153
1992	11,817	816	11,022	1,000	6,972	0	4,050	1,000	795	225	8,268	7,857	3,549	230
1994	11,056	974	10,538	902	6,851	0	3,687	902	518	265	8,253	892	2,803	342
Difference:														
1990 & 1988	726	903	932	765	-1,188	242	2,120	881	-207	366	771	772	- 46	244
1992 & 1990	1,170	1,508	1,181	1,659	899	86	283	1,633	-12	419	152	1,415	1,017	282
1994 & 1992	-761	1,271	-484	1,347	-121	0	-363	1,347	-277	348	-15	1,170	-746	412

KEY: "NASF" = net assignable square feet

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Table A-4. Standard errors (S.E.) for selected estimates (continued)

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Amount of research space (NASF in thousands):								
1988	26,793	836	41,114	1,175	26,264	646	17,702	397
1990	30,135	1,239	41,072	1,794	27,047	914	18,073	983
1992	32,723	1,356	42,306	1,846	27,620	1,106	19,370	607
1994	33,743	1,078	41,904	1,017	29,700	1,004	22,021	770

KEY: "NASF" = net assignable square feet

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

The standard errors for this study were estimated using a replication method called the jackknife repeated replication method. Using this method, the sample is divided into 15 replicates, and estimates are produced for each replicate. The variability among these replicate estimates is then used to estimate the standard error. Because the 1994 sample was independently drawn, the standard error of the difference between 1994 and 1992 estimates was computed under the assumption of independence.

Data Considerations, Definitions, and Limitations

In addition to sampling errors, survey estimates can be adversely affected by nonsampling errors. Errors of this type include those resulting from reporting and processing of data. In this survey, extensive followup with respondents was used to ensure that the data were as accurate as possible. This followup included cross-year review that verified inconsistencies between the current and previous questionnaires.

Research Square Footage

In the 1994 survey, research was defined more broadly than in previous years. However, this change in definition had little effect on how institutions actually reported S&E research space. Like the definition used in previous years, the 1994 definition included all R&D activities that are separately budgeted and accounted for. Unlike the previous definition, the 1994 definition also included departmental research that was not separately budgeted. Conversations with respondents from earlier surveys revealed that some departmental research had been included; thus, the current definition of research reflects what many institutions had been reporting all along.

Previous cycles of this survey used the definition of organized research that is specified in OMB Circular A-21 (the form used for calculation of indirect costs). That definition is as follows: *"**Organized research** means all research and development activities of an institution that are separately budgeted and accounted for. It includes: (1) **Sponsored research** means all research and development activities that are sponsored by Federal and non-Federal agencies and organizations . . . (2) **University research** means all research and development activities that are separately budgeted by the institution under an internal application of institutional funds."*

Institutions' facility recordkeeping systems vary considerably. In general, most of the larger institutions have central computerized facility inventory systems, often based on space surveys conducted specifically for OMB Circular A-21. Many institutions with smaller research programs are not required to calculate square footage for OMB Circular A-21, and do not maintain databases that can provide such information. These institutions had to calculate or estimate square footage information specifically for this study.

Capital Projects Involving Research Facilities

Relatively few institutions maintain information on construction and repair/renovation projects specific to research facilities. Many capital projects involve both research and nonresearch space. When a project was not exclusively for research, institutions had to estimate the proportion of the project that was related to research facilities. For this purpose, the following guideline was included in the questionnaire instructions: *For multi-purpose facilities, prorate the costs to reflect the proportion of R&D space involved in the projects (e.g., if 20 percent of the space involved is used for organized research, report 20 percent of the total project completion costs).*

Some projects, such as construction or whole-building renovation may take more than one year to complete, and other projects may overlap fiscal years. Projects were allocated to the fiscal year in which actual construction activity began or will begin.

Because institutions use different dollar values to identify "major projects," this survey established a guideline to ensure consistency of reporting. As in previous cycles of the survey, projects with costs of $100,000 or more ***associated with research facilities*** were included. In 1992 and 1994, the surveys also had a separate question about costs of repair/renovation projects in the $5,000 to $99,999 range.

Dollar Amounts: Current Versus Constant Dollars

In this report, capital project dollar amounts are presented in both constant and current dollars but discussed only in terms of 1993 constant dollars. Constant dollars are "inflation adjusted" dollars that adjust for variations in the purchasing power of the dollar over time. Dollar amounts were adjusted using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction. Unlike a more general index, this construction index closely tracks inflation within the construction industry. This index reflects only changes in prices and is unaffected by changes in the mix of construction projects during any given year.

Previous reports used current, not constant dollars to present trends in capital project expenditures. Comparisons in current dollars tend to overstate increases in spending over time because more current dollars are needed to buy the same products each year. Comparisons in constant dollars provide a more accurate picture of expenditure trends.

The specific adjustments used for each of the fiscal years is shown in Table A-5.

Table A-5. Composite Fixed-Weighted Price Index for Construction inflation adjustments

[illegible]	[illegible]
1986–1987	1.159
1988–1989	1.079
1990–1991	1.042
1992–1993	1.000

[1] The index for the second year was used in all calculations that spanned two fiscal years

SOURCE: National Science Foundation/SRS, 1994 Survey of Scientific and Engineering Research Facilities at Universities and Colleges

Condition and Adequacy of Research Facilities

A number of respondents stated that reports of the condition and the adequacy of facilities are, by their very nature, subjective. Two persons may make different assessments of the same facility or have different opinions of what is required in order for a facility to be suitable for a particular type of research. Despite the subjectivity involved, these items do capture an overall picture of the current status of facilities. Discussions with respondents at a number of institutions indicated that, for the most part, deans in consultation with department heads reported on the condition and adequacy of facilities. A few institutions indicated that they have detailed condition data in a central database. In those cases, the facilities office was able to respond to these items.

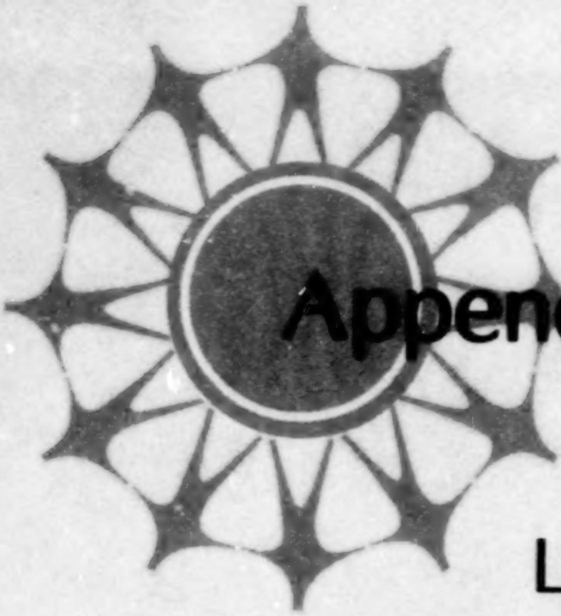
A few institutions indicated that it is conceptually difficult to assess the condition of a research facility without including instrumentation in that assessment. Most respondents, however, indicated that they had no such problem and were able to report on the condition of the "bricks and mortar."

Cost per Square Foot Data

The study did not collect unit cost data for individual construction or repair/renovation projects. It collected only the aggregate research-related costs and the aggregate research space involved in all projects begun during specified periods. These aggregates can be combined into indices of average cost per square foot, which are useful in tracking broad cost trends over time. However, they are of little practical value as guidelines for project planning. By all accounts, unit costs for both construction and repair/renovation projects are highly variable, depending on the specific requirements of the particular project and on many other factors as well (e.g., geographic region of the country). Such differences, which are of crucial importance in project planning, are obscured in the kinds of multiproject averages that can be constructed from this study's data.

Deferred Capital Needs

The study asked institutions to report on *deferred* construction and repair/renovation costs that were *included in an approved institutional plan*. For definition purposes, the survey stated that *deferred* space must satisfy the following four criteria: the space must be necessary to meet the critical needs of current faculty or programs; construction must *not* be scheduled to begin in FYs 1994 or 1995; the construction must *not* currently have funding; and the space must *not* be for developing new programs or for expanding the number of faculty. Although such a question prevents respondents from being too speculative, the item fails to include needs that may, in fact, exist but not be part of an institutional plan. Given the fiscal realities of the 1990s, many universities and colleges may *need* new S&E facilities but competing priorities, coupled with decreased budgets, may result in institutions not incorporating such needs into official planning documents. Since 40 percent of all institutions indicated that they had an institutional plan that included deferred capital projects, the estimate of need derived from responses to this question must be interpreted as a conservative estimate of overall S&E facility needs.



Appendix B

List of Sampled Institutions

List of Sampled Institutions

Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
•	University of Alaska Fairbanks	AK
•	Auburn University	AL
•	University of Alabama at Birmingham	AL
	University of South Alabama	AL
	University of Arkansas	AR
	University of Arkansas for Medical Sciences	AR
•	Arizona State University	AZ
•	University of Arizona	AZ
	San Diego State University	CA
•	University of California	CA
•	University of California-Davis	CA
•	University of California-Irvine	CA
•	University of California-Los Angeles	CA
•	University of California-Riverside	CA
•	University of California-San Diego	CA
•	University of California-San Francisco	CA
•	University of California-Santa Barbara	CA
	University of California-Santa Cruz	CA
	Colorado School of Mines	CO
•	Colorado State University	CO
•	University of Colorado at Boulder	CO
	University of Colorado at Colorado Springs	CO
•	University of Colorado Health Sciences Center	CO

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Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
•	University of Connecticut	CT
	University of Delaware	DE
	Florida Agricultural and Mechanical University	FL
	Florida State University	FL
•	University of Florida	FL
•	University of South Florida	FL
•	Georgia Institute of Technology	GA
	Georgia State University	GA
•	University of Georgia	GA
•	University of Hawaii at Manoa	HI
•	Iowa State University	IA
•	University of Iowa	IA
	Idaho State University	ID
	Southern Illinois University at Carbondale	IL
•	University of Illinois at Chicago	IL
•	University of Illinois at Urbana-Champaign	IL
	Ball State University	IN
•	Indiana University	IN
•	Purdue University	IN
	Kansas State University	KS
•	University of Kansas	KS
	Wichita State University	KS
•	University of Kentucky	KY
	Grambling State University	LA

Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
•	Louisiana State University	LA
•	University of Massachusetts at Amherst	MA
	University of Massachusetts Lowell	MA
•	University of Maryland at Baltimore	MD
•	University of Maryland College Park	MD
•	Michigan State University	MI
	Michigan Technological University	MI
•	University of Michigan-Ann Arbor	MI
•	Wayne State University	MI
•	University of Minnesota	MN
•	University of Missouri-Columbia	MO
•	Mississippi State University	MS
	University of Mississippi	MS
	Montana State University	MT
	East Carolina University	NC
•	North Carolina State University	NC
•	University of North Carolina at Chapel Hill	NC
	North Dakota State University	ND
•	University of Nebraska-Lincoln	NE
	University of Nebraska Medical Center	NE
•	Rutgers, the State University of New Jersey	NJ
•	University of Medicine and Dentistry of New Jersey	NJ

Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
	New Mexico Institute of Mining and Technology	NM
•	New Mexico State University	NM
•	University of New Mexico	NM
	University of Nevada-Reno	NV
•	State University of New York at Buffalo	NY
•	State University of New York at Stony Brook	NY
	State University of New York College of Environmental Sciences and Forestry	NY
	State University of New York Health Science Center at Brooklyn	NY
	Bowling Green State University	OH
	Cleveland State University	OH
	Ohio University	OH
•	The Ohio State University	OH
•	University of Cincinnati	OH
•	Oklahoma State University	OK
•	University of Oklahoma	OK
•	Oregon State University	OR
	University of Oregon	OR
•	Pennsylvania State University	PA
	Temple University	PA
•	University of Pittsburgh	PA
•	Clemson University	SC
	University of South Carolina	SC

Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
	South Dakota State University	SD
	Memphis State University	TN
	Tennessee State University	TN
•	University of Tennessee, Knoxville	TN
	Lamar University	TX
	Stephen F. Austin State University	TX
•	Texas A & M University	TX
	Texas Tech University	TX
	Texas Woman's University	TX
	University of Houston	TX
	University of North Texas	TX
	University of Texas at Arlington	TX
•	University of Texas at Austin	TX
	University of Texas Health Science Center at Houston	TX
	University of Texas Medical Branch at Galveston	TX
•	University of Texas Southwestern Medical Center at Dallas	TX
•	University of Texas System Cancer Center	TX
•	University of Utah	UT
•	Utah State University	UT
	College of William and Mary	VA
	George Mason University	VA

Public, doctorate-granting institutions

Top 100	*Institution name*	*State*
•	University of Virginia	VA
•	Virginia Commonwealth University	VA
•	Virginia Polytechnic Institute and State University	VA
•	University of Washington	WA
•	Washington State University	WA
•	University of Wisconsin-Madison	WI
	University of Wisconsin-Milwaukee	WI
	West Virginia University	WV

Private, doctorate-granting institutions

Top 100	*Institution name*	*State*
•	California Institute of Technology	CA
•	Stanford University	CA
•	University of Southern California	CA
	University of Denver	CO
	Wesleyan University	CT
•	Yale University	CT
	American University	DC
	George Washington University	DC
•	Georgetown University	DC
	Howard University	DC
	Florida Institute of Technology	FL
•	University of Miami	FL
	Clark Atlanta University	GA
•	Emory University	GA
	Morehouse School of Medicine	GA
	Loyola University of Chicago	IL
•	Northwestern University	IL
	Rush University	IL
•	University of Chicago	IL
	University of Health Sciences/ The Chicago Medical School	IL
•	Tulane University	LA
	Xavier University of Louisiana	LA
	Boston College	MA

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Private, doctorate-granting institutions

Top 100	***Institution name***	***State***
•	Boston University	MA
	Brandeis University	MA
•	Harvard University	MA
•	Massachusetts Institute of Technology	MA
	Smith College	MA
	Tufts University	MA
•	Woods Hole Oceanographic Institute	MA
	Worcester Polytechnic Institute	MA
•	Johns Hopkins University	MD
	Kirksville College of Osteopathic Medicine	MO
	St. Louis University	MO
•	Washington University	MO
•	Duke University	NC
	Wake Forest University	NC
	Dartmouth College	NH
•	Princeton University	NJ
	Seton Hall University	NJ
	Albany Medical College	NY
	Clarkson University	NY
•	Columbia University in the City of New York	NY
•	Cornell University	NY
•	Mount Sinai School of Medicine	NY
•	New York University	NY

Private, doctorate-granting institutions

Top 100	*Institution name*	*State*
	Rensselaer Polytechnic Institute	NY
•	Rockefeller University	NY
•	University of Rochester	NY
•	Yeshiva University	NY
•	Case Western Reserve University	OH
•	Carnegie Mellon University	PA
	Drexel University	PA
	Lehigh University	PA
	The Medical College of Pennsylvania	PA
	Thomas Jefferson University	PA
•	University of Pennsylvania	PA
	Brown University	RI
	Providence College	RI
	Meharry Medical College	TN
•	Vanderbilt University	TN
•	Baylor College of Medicine	TX
	Rice University	TX
	Marquette University	WI
	Medical College of Wisconsin	WI

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Public, nondoctorate-granting institutions

Institution name	*State*
Alabama Agricultural and Mechanical University	AL
Alabama State University	AL
Trenholm State Technical College	AL
University of Arkansas at Pine Bluff	AR
California Polytechnic State University-Pomona	CA
California State University-Chico	CA
California State University-Fresno	CA
California State University-Fullerton	CA
California State University-Hayward	CA
California State University-Long Beach	CA
Humboldt State University	CA
San Jose State University	CA
University of the District of Columbia	DC
Delaware State College	DE
Albany State College	GA
Fort Valley State College	GA
Southern Illinois University at Edwardsville	IL
Western Illinois University	IL
Kentucky State University	KY
Morehead State University	KY
Murray State University	KY
Southern University and A&M College at Baton Rouge	LA
University of Massachusetts Dartmouth	MA
Coppin State College	MD

Public, nondoctorate-granting institutions

Institution name	*State*
Morgan State University	MD
Towson State University	MD
University of Maryland Eastern Shore	MD
Grand Valley State University	MI
Northern Michigan University	MI
Mankato State University	MN
Lincoln University	MO
Northeast Missouri State University	MO
Alcorn State University	MS
Delta State University	MS
Jackson State University	MS
Mississippi Valley State University	MS
North Carolina Agricultural and Technical State University	NC
North Carolina Central University	NC
University of North Carolina at Charlotte	NC
Winston-Salem State University	NC
Eastern New Mexico University	NM
University of Nevada-Las Vegas	NV
City University of New York College of Staten Island	NY
City University of New York Queens College	NY
City University of New York York College	NY
State University of New York College at Brockport	NY
State University of New York College at Buffalo	NY
State University of New York College at Geneseo	NY

Public, nondoctorate-granting institutions

Institution name	*State*
Central State University	OH
Langston University	OK
Western Oregon State College	OR
California University of Pennsylvania	PA
Clarion University of Pennsylvania	PA
East Stroudsburg University of Pennsylvania	PA
Edinboro University of Pennsylvania	PA
Lincoln University	PA
South Carolina State College	SC
Winthrop College	SC
Prairie View A & M University	TX
Texas A & I University	TX
Texas Southern University	TX
University of Houston-Clear Lake	TX
West Texas State University	TX
James Madison University	VA
Norfolk State University	VA
Virginia Military Institute	VA
Virginia State University	VA
University of the Virgin Islands	VI
Central Washington University	WA
Eastern Washington University	WA
University of Wisconsin-Green Bay	WI

Public, nondoctorate-granting institutions

Institution name	*State*
University of Wisconsin-Parkside	WI
University of Wisconsin-River Falls	WI
University of Wisconsin-Stout	WI
Marshall University	WV

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Private, nondoctorate-granting institutions

Institution name	*State*
Oakwood College	AL
Selma University	AL
Tuskegee University	AL
Chapman University	CA
Harvey Mudd College	CA
Occidental College	CA
Pomona College	CA
Colorado College	CO
Connecticut College	CT
Quinnipiac College	CT
Rollins College	FL
Morehouse College	GA
Grinnell College	IA
Knox College	IL
DePauw University	IN
Valparaiso University	IN
Dillard University	LA
Loyola University	LA
Amherst College	MA
Emmanuel College	MA
Mount Holyoke College	MA
Regis College	MA
Wellesley College	MA
Wentworth Institute of Technology	MA

Private, nondoctorate-granting institutions

Institution name	*State*
Williams College	MA
Goucher College	MD
Bowdoin College	ME
Carleton College	MN
St. Mary's College	MN
Tougaloo College	MS
Johnson C. Smith University	NC
Monmouth College	NJ
Barnard College	NY
Ithaca College	NY
Manhattan College	NY
Vassar College	NY
Webb Institute of Naval Architecture	NY
College of Wooster	OH
Xavier University	OH
Reed College	OR
University of Portland	OR
Bucknell University	PA
Franklin and Marshall College	PA
Haverford College	PA
Swarthmore College	PA
Widener University	PA
Fisk University	TN
St. Mary's University San Antonio	TX

Private, nondoctorate-granting institutions

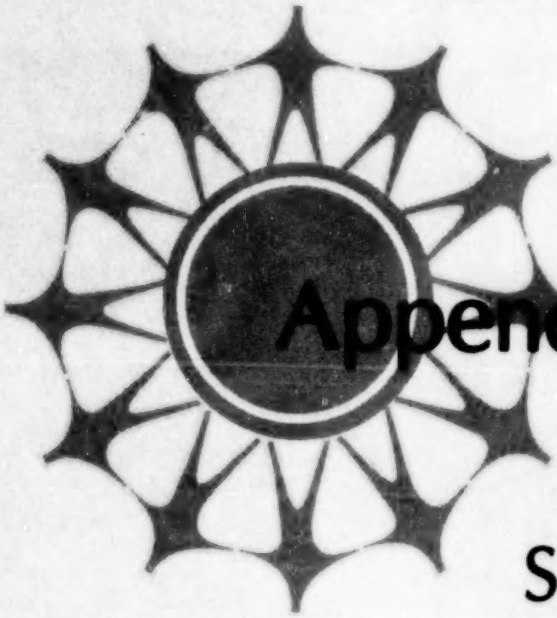
Institution name	*State*
Hampton University	VA
Middlebury College	VT
Pacific Lutheran University	WA
Beloit College	WI
Lawrence University	WI
Milwaukee School of Engineering	WI

Historically Black Colleges and Universities

Institution name	*State*
Trenholm State Technical College	AL
Alabama Agricultural and Mechanical University	AL
Alabama State University	AL
Oakwood College	AL
Selma University	AL
Tuskegee University	AL
University of Arkansas at Pine Bluff	AR
Howard University	DC
University of the District of Columbia	DC
Delaware State College	DE
Florida Agricultural and Mechanical University	FL
Morehouse College	GA
Albany State College	GA
Clark Atlanta University	GA
Fort Valley State College	GA
Morehouse School of Medicine	GA
Kentucky State University	KY
Southern University and A&M College at Baton Rouge	LA
Dillard University	LA
Grambling State University	LA
Xavier University of Louisiana	LA
University of Maryland Eastern Shore	MD
Coppin State College	MD
Morgan State University	MD

Historically Black Colleges and Universities

Institution name	*State*
Lincoln University	MO
Alcorn State University	MS
Jackson State University	MS
Mississippi Valley State University	MS
Tougaloo College	MS
North Carolina Agricultural & Technical State University	NC
Johnson C. Smith University	NC
North Carolina Central University	NC
Winston-Salem State University	NC
Central State University	OH
Langston University	OK
Lincoln University	PA
South Carolina State College	SC
Fisk University	TN
Meharry Medical College	TN
Tennessee State University	TN
Prairie View A & M University	TX
Texas Southern University	TX
Hampton University	VA
Virginia State University	VA
Norfolk State University	VA
University of the Virgin Islands	VI



Appendix C

Survey Questionnaire

NSF Form: 1264 (9/93)

OMB # 3145-0101
Expires 1/31/94

1994 SURVEY OF SCIENTIFIC AND ENGINEERING RESEARCH FACILITIES AT COLLEGES AND UNIVERSITIES

National Science Foundation
National Institutes of Health

Acting out of concerns raised by the academic community, Congress directed the National Science Foundation (NSF) to collect and analyze data about research facilities at colleges and universities and to report to Congress every two years. This survey is in response to that requirement under authorization of the National Science Foundation Act of 1950, as amended.

For this survey, we're asking you to respond to 12 items in these five categories:

- amount of space in your institution,
- amount and condition of research space in your institution,
- costs of renovation/repair and new construction of research space completed or begun,
- amount of new space needed for current research projects, and
- miscellaneous topics.

We will use the information that you provide us for a report that gives a broad, quantitative picture of

- the cost, availability, and condition of existing research facilities; and
- the current capital spending by colleges and universities, sources of funding, and plans for future construction and renovation of research facilities.

The report is used by Congress, many higher education associations, and university and college administrations to help make policy decisions. NSF and NIH do not use or allow other agencies to use the information from this survey to affect individual institutional funding, nor will detailed responses be used in any manner that would identify an individual institution's responses. Your participation in this survey is voluntary.

The president or chancellor of your institution named the individual on the label below to coordinate data collection for this survey. Please correct any wrong information on the label.

Label

If someone other than the person listed above coordinates the data collection, please tell us whom we may call if we have questions about the information.

Name	**Title/Department**	**Telephone no. and ext.**

Completing this survey requires an average of 30 hours. If you wish to comment on this burden, contact Herman Fleming, Reports Clearance Officer, NSF, at 703-306-1243, and the Office of Management and Budget, Paperwork Reduction Project (OMB Number 3145-0101), Washington, DC 20503.

Return the completed survey by *December 1, 1993*, to

The Gallup Organization
Attention: Sean Stevens
300 South 68th St. Place
Lincoln, NE 68510

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If you have any questions or comments about the survey, contact Dr. Ann Lanier of NSF at 703-306-1774 or Jennifer Spielvogel of The Gallup Organization at 1-800-288-9439.

Definitions and Guidelines

Use the definitions and guidelines in this section as you fill out the survey.

DEFINITIONS

Research	Refers to all research and development activities of an institution that are budgeted and accounted for. Research can be funded by the federal government, state governments, foundations, corporations, universities, or other sources.
Research Facilities	Refers to the physical plant in which research activities take place, including ■ research laboratories; ■ controlled-environment space, such as clean or white rooms; ■ technical-support space, such as carpentry and machine shops; ■ facilities for laboratory animals, such as animal production colonies, holding rooms, isolation and germ-free rooms; ■ faculty or staff offices, to the extent that they are used for research; ■ department libraries, to the extent that they are used for research; and ■ fixed (built-in) equipment such as fume hoods and benches. *Does not include* ■ non-fixed equipment costing less than $1 million (these data are collected in a separate NSF/NIH survey); ■ facilities that have been designated as federally funded research and development centers, such as Brookhaven National Lab, Kitt Peak, Fermi Lab, etc.; or ■ facilities that are used by faculty but are not administered by the institution, such as research space at Veterans Administration or other non-university hospitals.
Research Space	Refers to the net assignable square feet (NASF) of space in facilities within which research activities take place.
Repair/Renovation	Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, and so on.
New Construction	Refers to additions to an existing building or construction of a new building.

Science and Engineering (S&E) Fields

Because every institution has its own way of classifying fields of study, for consistency please use the cross reference (see page 16) to classify areas of study at your institution. The cross reference identifies the departments that are included within each of the science and engineering (S&E) fields used in this survey. The cross reference is based on the classification of instructional programs used by the National Center for Educational Statistics.

If you are unable to separate data for academic programs, report the combined data under "Other Sciences, not elsewhere classified" and list the fields that those data represent.

For this survey, Science and Engineering (S&E) Fields include

- Engineering
- Physical Sciences
- Environmental Sciences
- Mathematics
- Computer Sciences
- Agricultural Sciences
- Biological Sciences
- Medical Sciences
- Psychology
- Social Sciences
- Other Sciences, not elsewhere classified

They do not include

- law, business administration/management (except economics), humanities, history, the arts, or education (except educational psychology), for example.

GUIDELINES

For multi-purpose space

Prorate the net assignable square feet (NASF) to reflect the proportion of use devoted to research activity.

For example, if a room or building is devoted to research activity approximately 40% of the time, count 40% of the NASF as research space.

For shared space

Prorate the NASF to reflect the proportion of use devoted to each field.

For example, if a room or building is devoted equally to research activity in Computer Sciences and Mathematics, count 50% of the NASF as research space for Computer Sciences and 50% for Mathematics.

For multi-purpose facilities

Prorate the cost of repair/renovation and new construction projects to reflect the proportion of research space involved.

For multi-year projects

Allocate the entire project completion cost (planning, construction, fixed equipment) to the fiscal year in which construction actually began or is expected to begin.

Amount of Space in Your Facility

Item 1a. Instructional and research space

To determine the current amount of instructional and research space in your facilities, include

- all space assigned to the fields or to the departments within fields, such as departmental and faculty offices, conference and seminar rooms, research space, and instructional space; and
- space leased by your institution.

If the information is not available, you may estimate the amounts.

❶ In **Column 1** on the next page, fill in the current amount of net assignable square feet (NASF) devoted to *instruction and research* for each field or department listed.

❷ Then near the bottom of **Column 1**, fill in the current *total* NASF devoted to instruction and research for

- science and engineering (S&E) fields,
- non-science fields, and
- all S&E and all non-science fields.

❸ In **Column 2**, fill in the current amount of NASF devoted to *research only* for each S&E field or department listed.

❹ Then at the bottom of **Column 2**, fill in the *total* NASF devoted to research in all S&E fields.

Note for institutions using a facilities inventory system based on either NCES, NACUBO, or WICHE classifications:

For **Column 1**, Instructional and Research NASF, *add* the space that is assigned to functional category 1 (Instruction) and to functional category 2 (Research). For **Column 2**, Research NASF, use *only* the space that is assigned to functional category 2 (Research).

Please refer to pages 95–96 in Appendix 2 of *Postsecondary Education Facilities Inventory and Classification Manual*, U.S. Department of Education, Office of Educational Research and Improvement, NCES 92-165. The definitions in that book are adapted from the 1988 NACUBO *Taxonomy of Functions* and the 1972 WICHE *Program Classification Structure*.

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Field	Column 1 Instructional and Research NASF	Column 2 Research NASF
SCIENCE AND ENGINEERING (S&E) FIELDS		
Engineering		
Physical Sciences		
Environmental Sciences		
Mathematics		
Computer Sciences		
Agricultural Sciences		
Biological Sciences Other than medical school		
Biological Sciences Medical school		
Medical Sciences Other than medical school		
Medical Sciences Medical school		
Psychology		
Social Sciences		
Other Sciences, not elsewhere classified List them:		
TOTAL FOR ALL S&E FIELDS		
TOTAL FOR ALL NON-SCIENCE FIELDS [for example, law, business administration/management (except economics), humanities, history, the arts, and education (except educational psychology)]		
TOTAL FOR ALL S&E AND ALL NON-SCIENCE FIELDS		

Item 1b. Leased research and development space

Look at the total research space for all S&E facilities at the bottom of **Column 2** in the chart above. How much of that space is leased?

____________________ **NASF of leased research space**

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Amount of Research Space

Item 2. Amount of research space, by field

To rate whether the amount of research space at your institution reported in **Item 1a, Column 2** is sufficient for current research programs, consider

- only the existing amount of research space, and
- only your current research programs.

For each field listed below, circle one of the following codes:

A Adequate amount; sufficient to support all the needs of your research in the field

B Generally adequate amount; sufficient to support most of your research needs in the field but may have some limitations

C Inadequate amount; not sufficient to support the needs of your research in the field

D Nonexistent space but needed

NA Not applicable or not needed

Field	Amount of research space (circle one in each row)				
Engineering	A	B	C	D	NA
Physical Sciences	A	B	C	D	NA
Environmental Sciences	A	B	C	D	NA
Mathematics	A	B	C	D	NA
Computer Sciences	A	B	C	D	NA
Agricultural Sciences	A	B	C	D	NA
Biological Sciences Other than medical school	A	B	C	D	NA
Biological Sciences Medical school	A	B	C	D	NA
Medical Sciences Other than medical school	A	B	C	D	NA
Medical Sciences Medical school	A	B	C	D	NA
Psychology	A	B	C	D	NA
Social Sciences	A	B	C	D	NA
Other Sciences, not elsewhere classified List them:	A	B	C	D	NA

Who provided the above assessments (e.g., deans, department heads, physical plant administrators, the survey coordinator)? ______________________

____

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Item 3. Current condition of research space, by field

To rate the condition of current research space reported in **Item 1a, Column 2,**

- consider only current research programs,
- consider the type of research conducted in the facility, and
- exclude non-fixed research instrumentation costing less than $1 million.

For each field, fill in the percentage of research space that falls into each category below.

A Suitable for use in the most highly developed and scientifically sophisticated research in the field
B Effective for most purposes but not applicable to category **A**
C Effective for some purposes but in need of limited renovation or repair
D Requires major repair or renovation to be used effectively
E Requires replacement
NA Not applicable or no research space in this field

Field	Percentage of research space according to condition						
	A	B	C	D	E	NA	Total
Engineering							100%
Physical Sciences							100%
Environmental Sciences							100%
Mathematics							100%
Computer Sciences							100%
Agricultural Sciences							100%
Biological Sciences Other than medical school							100%
Biological Sciences Medical school							100%
Medical Sciences Other than medical school							100%
Medical Sciences Medical school							100%
Psychology							100%
Social Sciences							100%
Other Sciences, not elsewhere classified List them:							100%

Who provided the above assessments (e.g., deans, department heads, physical plant administrators, the survey coordinator)? ____________________

____

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Costs of Projects Completed or

Item 4a. Research facilities projects over $100,000: your FY 1992 and FY 1993

To report the *completion costs* (planning, construction, fixed equipment) and net assignable square feet (NASF) involved in repair/renovation and new construction of research facilities,

- consider only projects begun during your Fiscal Year 1992 or your Fiscal Year 1993,
- consider only projects over $100,000 (see **Item 7** for projects under $100,000), and
- prorate as necessary.

❶ In **Columns 1** and **3**, fill in the *completion costs* for repair/renovation and for new construction for each field listed.

❷ Then fill in the total *completion costs* for all science and engineering (S&E) fields at the bottom of **Columns 1** and **3**.

❸ In **Columns 2** and **4**, estimate the NASF involved in these projects for each field listed.

❹ Then estimate the total NASF involved for all S&E fields at the bottom of **Columns 2** and **4**.

Field	REPAIR/RENOVATION begun during your FY 1992 or 1993		NEW CONSTRUCTION begun during your FY 1992 or 1993	
	Column 1 Cost	Column 2 NASF	Column 3 Cost	Column 4 NASF
Engineering				
Physical Sciences				
Environmental Sciences				
Mathematics				
Computer Sciences				
Agricultural Sciences				
Biological Sciences Other than medical school				
Biological Sciences Medical school				
Medical Sciences Other than medical school				
Medical Sciences Medical school				
Psychology				
Social Sciences				
Other Sciences, not elsewhere classified List them:				
TOTAL FOR ALL S&E FIELDS				

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Item 4b. Costs to comply with the 1990 Americans with Disabilities Act

Look at the total cost reported in **Item 4a** in the last row of **Column 1.** Estimate the percentage of these total repair and renovation costs that your institution spent to bring this space into compliance with the 1990 Americans with Disabilities Act.

____________________ **% spent to comply with the 1990 Americans with Disabilities Act**

Item 5. Sources of funding for research facilities projects over $100,000: your FY 1992 and FY 1993

To provide the sources of funding for the projects begun during your Fiscal Year 1992 or your Fiscal Year 1993, which you reported in **Item 4a,**

❶ Look back at the last row of the chart in **Item 4a.** Copy the totals that you wrote in **Columns 1** and **3** into the first row below.

❷ Fill in the expected dollar amounts of funding that you anticipate from each source listed below.

Source	**Column 1** **REPAIR/RENOVATION begun during your FY 1992 or 1993**	**Column 2** **NEW CONSTRUCTION begun during your FY 1992 or 1993**
COST OF ALL PROJECTS FOR S&E RESEARCH FACILITIES		
Federal Government		
State or Local Government		
Private Donation		
Institutional Funds Operating funds, endowments, indirect cost recovery, etc.		
Tax-Exempt Bonds		
Other Debt Financing		
Other Sources of Funding List them:		

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Item 6. Actual vs. planned research facilities spending: your FY 1992 and FY 1993

❶ Did your institution fill out this survey in 1992?

☐ Yes. Go to ❷.

☐ No. Go to **Item 7** on the next page.

❷ On the copy of your responses to the 1992 survey (included in this survey package), look at the total amount your institution planned to spend for repair/renovation of research facilities during your Fiscal Year 1992 and your Fiscal Year 1993. You'll find this amount listed under Item 5 in the 1992 survey.

Now, look at the amount you wrote in the first row of **Column 1** in **Item 5** on the previous page. Is that amount within 25% (±) of the amount of spending listed under Item 5 in your 1992 survey?

☐ Yes. Go to ❸.

☐ No. What factors account for the difference?

____

____

____

____

❸ On the copy of your responses to the 1992 survey, look at the total amount your institution planned to spend for new construction of research facilities during your Fiscal Year 1992 and your Fiscal Year 1993. You'll also find this amount under Item 5 in the 1992 survey.

Now, look at the amount you wrote in the first row of **Column 2** in **Item 5** on the previous page. Is that amount within 25% (±) of the amount of spending listed under Item 5 in your 1992 survey?

☐ Yes. Go to **Item 7** on the next page.

☐ No. What factors account for the difference?

____

____

____

____

Item 7. Repair/renovation projects between $5,000 and $100,000: your FY 1992 and FY 1993

To report the *completion costs* (planning, construction, fixed equipment) involved in repair/renovation of science and engineering (S&E) research facilities,

- include only costs for research components,
- consider only projects begun during your Fiscal Year 1992 or your Fiscal Year 1993, and
- consider only projects costing between $5,000 and $100,000 (see **Item 4a** for projects over $100,000).

Fill in the total dollar amount in the space below, prorating as necessary.

$ ____________________ **Total for all S&E research facilities**

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Item 8. Planned research facilities over $100,000 scheduled to begin construction in your FY 1994 and FY 1995

To report the *completion costs* (planning, construction, fixed equipment) and net assignable square feet (NASF) for repair/renovation and new construction of research facilities that your institution plans to begin,

- consider only projects in which construction is planned to begin during your Fiscal Year 1994 or your Fiscal Year 1995,
- consider only projects expected to cost over $100,000, and
- prorate as necessary.

❶ In **Columns 1** and **3**, fill in the *completion costs* for repair/renovation and for new construction for each field listed.

❷ Then fill in the total *completion costs* for all science and engineering (S&E) fields at the bottom of **Columns 1** and **3**.

❸ In **Columns 2** and **4**, estimate the NASF involved in these projects for each field listed.

❹ Then fill in the total NASF for all S&E fields at the bottom of **Columns 2** and **4**.

	REPAIR/RENOVATION scheduled to begin in your FY 1994 or 1995		**NEW CONSTRUCTION scheduled to begin in your FY 1994 or 1995**	
	Column 1	**Column 2**	**Column 3**	**Column 4**
Field	**Expected Cost**	**Estimated NASF**	**Expected Cost**	**Estimated NASF**
Engineering				
Physical Sciences				
Environmental Sciences				
Mathematics				
Computer Sciences				
Agricultural Sciences				
Biological Sciences Other than medical school				
Biological Sciences Medical school				
Medical Sciences Other than medical school				
Medical Sciences Medical school				
Psychology				
Social Sciences				
Other Sciences, not elsewhere classified List them:				
TOTAL FOR ALL S&E FIELDS				

Space Needed

Item 9. Research space needed for current faculty and programs but *not* scheduled to begin construction during your FY 1994 or FY 1995

❶ Does your *approved institutional plan* include any *deferred* space that requires repair/renovation or new construction? (*Deferred* space must satisfy the following four criteria: the space must be necessary to meet the critical needs of your current faculty or programs; construction must *not* be scheduled to begin during your Fiscal Year 1994 or your Fiscal Year 1995; the construction must *not* currently have funding; and the space must *not* be for developing new programs or for expanding the number of faculty.)

☐ Yes. How many years does your plan include? ________ Go to ❷.

☐ No. Go to **Item 10** on the next page.

❷ For each field listed, estimate and record in **Column 1** the *completion costs* (planning, construction, fixed equipment) for *deferred* space which needs *repair/renovation.*

❸ Then add up the estimates and record the total at the bottom of **Column 1**.

❹ For each field listed, estimate and record in **Column 2** the *completion costs* for *deferred* space which needs *new construction.*

❺ Then add up the estimates and record the total at the bottom of **Column 2**.

❻ If you cannot provide cost estimates, then check here ☐ and fill in *estimated NASF* in the chart below.

Field	Column 1 Estimated costs for needed REPAIR/ RENOVATION *not* scheduled to begin during your FY 1994 or 1995	Column 2 Estimated costs for needed NEW CONSTRUCTION *not* scheduled to begin during your FY 1994 or 1995
Engineering		
Physical Sciences		
Environmental Sciences		
Mathematics		
Computer Sciences		
Agricultural Sciences		
Biological Sciences Other than medical school		
Biological Sciences Medical school		
Medical Sciences Other than medical school		
Medical Sciences Medical school		
Psychology		
Social Sciences		
Other Sciences, not elsewhere classified List them:		
TOTAL FOR ALL S&E FIELDS		

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Miscellaneous Topics

Item 10. Facilities for laboratory animals

❶ Does your institution have facilities for laboratory animals?

☐ No. Go to **Item 11** on the next page.

☐ Yes. Go to ❷.

❷ To report on facilities for laboratory animals,

Include

- both departmental and central facilities that are subject to government (U.S. Public Heath Service, USDA, state) regulations concerning humane care and use of laboratory animals; and
- all animal housing areas (e.g., cage rooms, stalls, wards, animal production colonies, laboratory space occupied by animals), holding rooms, isolation and germ-free rooms, surgical facilities, and other related service areas (e.g., feed storage rooms, cage-washing rooms, casting rooms, shops, storage), if these areas directly support research.

Do not include

- agricultural field buildings sheltering animals that do not directly support research or that are not subject to government regulations concerning humane care and use of laboratory animals, or
- areas for treatment of animals that are veterinary patients.

Fill in the total amount of net assignable square feet (NASF) allotted to these facilities. Then fill in the amount of NASF allotted to research facilities for laboratory animals.

__________ **Total NASF**

__________ **Research NASF**

❸ Fill in the percentage of research NASF that

fully meets government regulations	__________ %
needs limited renovation or repair to meet government regulations	__________ %
needs major renovation, repair, or replacement to meet government regulations	__________ %
	100 %

❹ Fill in the cost of repair/renovation and construction projects planned to begin during your Fiscal Year 1994 or your Fiscal Year 1995. $ __________

Item 11. Limit on tax-exempt bonds

❶ Is your institution a private college or university?

☐ No. Go to **Item 12**.

☐ Yes. Go to ❷.

❷ Recent federal tax reform legislation established a limit on tax-exempt bonds of $150 millon per private college or university.

Has your institution reached the limit on tax-exempt bonds?

☐ Yes.

☐ No, but we expect to within the next two fiscal years.

☐ No, and we do not expect to within the next two fiscal years.

Item 12. Feedback

We appreciate the time you have taken to fill out the 1994 survey. We will be extensively revising the 1996 survey to help make your task less burdensome and to improve the reliability of the information.

❶ Would you be willing to discuss drafts of the revised survey with members of the development team?

☐ Yes. Please write your name and phone number below.

____

____

____

____

☐ No.

❷ How many person-hours were required to complete this form? ____________

You are finished with the survey. *Return it by December 1, 1993,* to *The Gallup Organization*
Attention: Sean Stevens
300 South 68th St. Place
Lincoln, NE 68510

|||

CROSS REFERENCE BETWEEN NSF FIELD CATEGORIES AND THE NCES CLASSIFICATION OF INSTRUCTIONAL PROGRAMS

Use this chart to identify the departments that are included within each of the science and engineering (S&E) fields used in this survey.

ENGINEERING

101 Aerospace Engineering
  14.02 Aerospace, aeronautical, and astronautical engineering

102 Agricultural Engineering
  14.03 Agricultural engineering

103 Biomedical Engineering
  14.05 Bioengineering and biomedical engineering

104 Chemical Engineering
  03.0509 Wood sciences
  14.07 Chemical engineering

105 Civil Engineering
  04.02 Architecture
  14.04 Architectural engineering
  14.08 Civil engineering
  14.14 Environmental health engineering

106 Electrical Engineering
  14.09 Computer engineering
  14.10 Electrical, electronics, and communications engineering
  14.1002 Microelectronic engineering

107 Engineering Science
  14.12 Engineering physics
  14.13 Engineering science

108 Industrial Engineering/Management Science
  14.17 Industrial engineering
  14.27 Systems engineering
  30.06 Systems science

109 Mechanical Engineering
  14.11 Engineering mechanics
  14.19 Mechanical engineering

110 Metallurgical and Materials Engineering
  14.06 Ceramic engineering
  14.18 Materials engineering
  14.20 Metallurgical engineering
  40.0701 Metallurgy

111 Mining Engineering
  14.15 Geological engineering
  14.16 Geophysical engineering
  14.21 Mining and mineral engineering

112 Nuclear Engineering
  14.23 Nuclear engineering

113 Petroleum Engineering
  14.25 Petroleum engineering

114 Engineering, not elsewhere classified
  14.01 Engineering, general
  14.22 Naval architecture and marine engineering
  14.24 Ocean engineering
  14.28 Textile engineering
  14.99 Engineering, other
  19.09 Textiles and clothing (excluding 19.0902, Fashion Design)
  30.03 Engineering and other fields

PHYSICAL SCIENCES

201 Astronomy
  40.02 Astronomy
  40.03 Astrophysics
  40.09 Planetary science

202 Chemistry
  40.05 Chemistry

203 Physics
  40.08 Physics

204 Physical Sciences, not elsewhere classified
  40.01 Physical sciences, general
  40.0799 Miscellaneous physical sciences, other
  40.099 Physical sciences, other

ENVIRONMENTAL SCIENCES

301 Atmospheric Sciences
  40.4 Atmospheric sciences and meteorology

302 Geosciences
  14.26 Surveying and mapping sciences
  40.06 Geological sciences
  40.0703 Earth sciences

303 Oceanography
  26.0607 Marine biology
  40.0702 Oceanography

304 Environmental Sciences, not elsewhere classified

MATHEMATICS

402 Mathematics and Applied Mathematics
  06.1302 Operations research (quantitative methods)
  27.01 Mathematics, general
  27.03 Applied mathematics
  27.04 Pure mathematics
  27.99 Mathematics, other
  30.08 Mathematics and computer science

403 Statistics
  27.02 Actuarial sciences
  27.05 Statistics

COMPUTER SCIENCES

401 Computer Sciences
  06.12 Management information systems
  11 Computer and information sciences, general
  30.09 Imaging science

AGRICULTURAL SCIENCES (SEE ALSO 102 AND 901)

501 Agricultural Sciences
  02.01 Agricultural sciences, general
  02.02 Animal sciences
  02.03 Food sciences
  02.04 Plant sciences
  02.05 Soil sciences
  02.99 Agricultural sciences, other
  03.01 Renewable natural resources, general

  - 03.03 Fishing and fisheries
  - 03.05 Forestry and related sciences
  - 03.06 Wildlife management
  - 03.99 Renewable natural resources, other
  - 31.04 Water resources

BIOLOGICAL SCIENCES

- 601 Anatomy
  - 18.0201 Clinical anatomy
  - 26.0601 Anatomy
- 602 Biochemistry
  - 18.0202 Clinical biochemistry
  - 26.02 Biochemistry and biophysics
- 603 Biology
  - 26.01 Biology, general
  - 26.0604 Embryology
- 604 Biometry and epidemiology
  - 18.2202 Epidemiology
  - 26.0602 Biometrics and biostatistics
- 605 Biophysics
- 606 Botany
  - 26.03 Botany (excluding 26.0302, Bacteriology, see 611)
- 607 Cell Biology
  - 26.04 Cell and molecular biology
  - 26.0606 Histology
- 608 Ecology
  - 26.0603 Ecology
- 609 Entomology and Parasitology
  - 26.0610 Parasitology
  - 26.07102 Entomology
- 610 Genetics
  - 26.0703 Genetics, human and animal
- 611 Microbiology, Immunology, and Virology
  - 18.0203 Clinical microbiology
  - 18.1002 Allergies and endomology
  - 18.1009 Immunology
  - 26.0302 Bacteriology
  - 26.05 Microbiology
- 612 Nutrition
  - 19.05 Food sciences and human nutrition
  - 20.0108 Food and nutrition
  - 26.0609 Nutritional sciences
- 613 Pathology
  - 18.0204 Clinical pathology
  - 18.1018 Pathology
  - 26.0704 Pathology, human and animal
- 614 Pharmacology
  - 18.0206 Clinical toxicology
  - 26.0612 Toxicology
  - 26.0705 Pharmacology, human and animal
  - 42.14 Psychopharmacology
- 615 Physiology
  - 18.0205 Physiology
  - 26.0706 Physiology, human and animal
- 616 Zoology
  - 26.0701 Zoology
  - 26.0799 Zoology, other
- 617 Biosciences, not elsewhere classified
  - 26.0699 Miscellaneous specialized areas, life sciences, other
  - 26.99 Life sciences, other

MEDICAL SCIENCES (see also 103)

- 701 Anesthesiology
  - 18.1003 Anesthesiology
- 702 Cardiology
- 703 Cancer Research/Oncology
- 704 Endocrinology
  - 26.0605 Endocrinology
- 705 Gastroenterology
- 706 Hematology
  - 18.08 Hematology
- 707 Neurology
  - 18.1024 Neurology
  - 26.0608 Neurosciences
- 708 Obstetrics and Gynecology
  - 18.1013 Obstetrics and gynecology
- 709 Ophthalmology
  - 18.1014 Ophthalmology
  - 18.12 Optometry
- 710 Otorhinolaryngology
  - 18.1017 Otorhinolaryngology/otolaryngology
- 711 Pediatrics
  - 18.1019 Pediatrics
  - 20.0102 Child development
- 712 Preventive Medicine and Community Health
  - 18.1007 Family practice
  - 18.1022 Preventive medicine
- 713 Psychiatry
  - 18.1023 Psychiatry
  - 18.1106 Psychiatry/mental health
- 714 Pulmonary Disease
- 715 Radiology
  - 18.1012 Nuclear medicine
  - 18.1025 Radiology
  - 26.0611 Radiobiology
- 716 Surgery
  - 18.1004 Colon and rectal surgery
  - 18.1011 Neurological surgery
  - 18.1016 Orthopedic
  - 18.1021 Plastic surgery
  - 18.1026 Surgery
  - 18.1027 Thoracic surgery
- 717 Clinical Medicine, not elsewhere classified
  - 18.0299 Basic clinical health sciences, other
  - 18.1001 Medicine, general
  - 18.1005 Dermatology
  - 18.1008 Geriatrics
  - 18.1010 Internal medicine
  - 18.1020 Physical medicine and rehabilitation
  - 18.1028 Urology
  - 18.1099 Medicine, other
  - 18.13 Osteopathic medicine
  - 18.15 Podiatry
  - 30.01 Biological and physical sciences
- 718 Dental Sciences
  - 18.04 Dentistry
  - 18.1015 Orthodontic surgery
- 719 Nursing
  - 18.11 Nursing (excluding 18.1106, Psychiatry/Mental Health, see 713)

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- 720 Pharmaceutical Sciences
  - 18.14 Pharmacy
- 721 Veterinary Sciences
  - 18.24 Veterinary medicine
- 722 Health Related, not elsewhere classified
  - 17.0807 Occupational therapy
  - 17.0813 Physical therapy
  - 17.0899 Rehabilitation services, other
  - 17.99 Allied health, other
  - 18.07 Health sciences administration
  - 18.09 Medical laboratory
  - 18.22 Public health
  - 18.99 Health sciences, other
- 723 Speech Pathology and Audiology
  - 18.01 Audiology and speech pathology

PSYCHOLOGY

- 801 Psychology
  - 13.08 School psychology (not including Educational Psychology)
  - 17.0801 Art therapy
  - 42 Psychology (including Educational Psychology)

SOCIAL SCIENCES

- 901 Agricultural Economics
  - 01.0102 Agricultural business and management
  - 01.0103 Agricultural economics
- 902 Anthropology (Cultural and Social)
  - 45.02 Anthropology
  - 45.03 Archeology
- 903 Economics (except Agricultural)
  - 06.05 Business Economics
  - 45.06 Economics
- 904 Geography
  - 45.07 Geography
- 905 History and philosophy of science
- 906 Linguistics
  - 23.06 Linguistics
  - 42.12 Psycholinguistics
- 907 Political Science
  - 44.01 Public affairs, general
  - 44.03 International public service
  - 44.04 Public administration
  - 44.05 Public policy studies
  - 44.99 Public affairs, other
  - 45.09 International affairs
  - 45.10 Political science and government
- 908 Sociology
  - 45.05 Demography
  - 45.11 Sociology
- 909 Sociology and Anthropology
- 910 Social Sciences, not elsewhere classified
  - 04.03 City, community, and regional planning
  - 05 Area and ethnic studies
  - 06.06 Human resources development
  - 06.15 Organizational behavior
  - 31.03 Parks and recreational management
  - 43.01 Criminal justice
  - 44.02 Community services
  - 44.07 Social work
  - 45.01 Social sciences, general
  - 45.04 Criminology
  - 45.12 Urban studies
  - 45.99 Social sciences, other

Appendix D

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42 U.S. Code Sec. 289d. 1994 and CFR part 2 1994.

42 U.S.C. 1886.

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STIS

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at the National Science Foundation

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Send a message to the Internet address stisserv@nsf.gov. The *text* of the message should be as follows (the Subject line is ignored):

get index

You will receive a list of all the documents on STIS and instructions for retrieving them. Please note that all requests for electronic documents should be sent to stisserv, as shown above. Requests for printed publications should be sent to pubs@nsf.gov.

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FTP to *stis.nsf.gov*. Enter *anonymous* for the username, and your E-mail address for the password. Retrieve the file "index". This contains a list of the files available on STIS and additional instructions.

Getting Started with The On-Line System

If you are on the Internet: *telnet stis.nsf.gov*. At the login prompt, enter *public*.

If you are dialing in with a modem: Choose 1200, 2400, or 9600 baud, 7-E-1. Dial (703) 306-0212 or (703) 306-0213

When connected, press *Enter*. At the login prompt, enter *public*.

Getting Started with Direct E-Mail

Send an E-mail message to the Internet address stisserv@nsf.gov. Put the following in the text:

get stisdirm

You will receive instructions for this service.

Getting Started with Gopher and WAIS

The NSF Gopher server is on port 70 of stis.nsf.gov. The WAIS server is also on stis.nsf.gov. You can get the ".src" file from the "Directory of Servers" at quake.think.com. For further information contact your local computer support organization.

For Additional Assistance Contact:

E-mail: *stis@nsf.gov* (Internet)

Phone: (703) 306-0214 (voice mail)

TDD: (703) 306-0090

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